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DOMESTIC ENGINEERING

The Plumbing and Heating Weekly

AUGUST 18, 1928

Gas Refrigeration

Fable of the Charcoal Burner *and the* Fuller

A charcoal burner once suggested to a fuller (dry cleaner) that they occupy the same quarters and thus lessen their expenses. The fuller objected, replying "That would be impossible, for whatever I should whiten, you would immediately blacken with your charcoal."

—*Aesop's Fables*

And so a heating contractor, possessing a spotless reputation for quality heating, may entertain the thought of adopting cut price selling in hope of increasing his business and profits.

A little reflection, however, usually convinces him that to join hands with cut price competition would probably blacken or injure his reputation and finally reduce his profits.

He decides, instead, to submit with his bids and emphasize to his customers such fuel-saving advantages as Weil-McLain Corrugated Heating Surfaces, Long Back-and-Forth Fire Travel and Scientific Combustion, because he knows that in the end this will yield him greater profits.

WEIL-McLAIN COMPANY

General Offices	Boiler Factory	Radiator Factory
Chicago, Illinois	Michigan City, Indiana	Erie, Pa.

Fight Fuel Waste with

Weil-McLain

SCIENTIFIC COMBUSTION

BOILERS

"SEE THE WEIL-McLAIN JOBBER IN YOUR TERRITORY"

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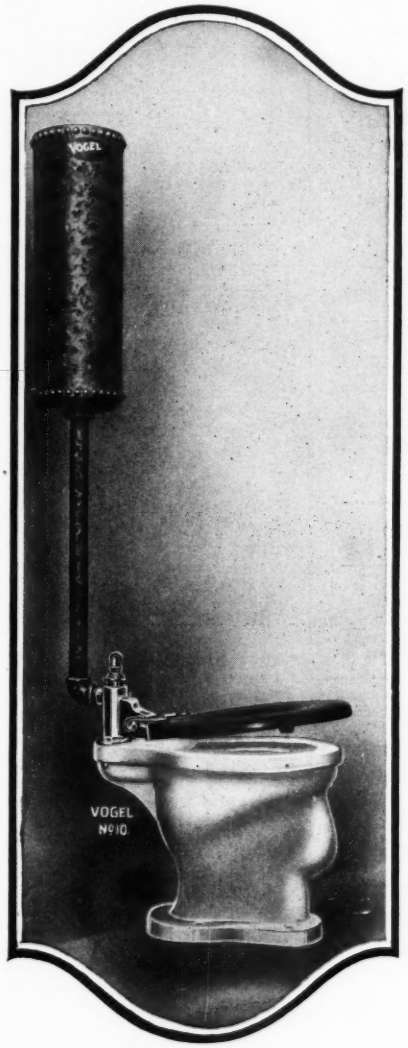

VOGEL *Number Ten Closet*

PROGRESS

Progress might seem mighty slow to you sometimes but that's just when you want to tickle it a little bit. But progress never has to be slow for you. Selling a full line of **VOGEL** Products is the fastest way to make a good living. The reason, it's the most progressive step in this type equipment that's ever been made.

Don't slow up on **VOGEL** selling.

Jovo-

Jos. A. Vogel Co.

Wilmington, Del. **St. Louis, Mo.**

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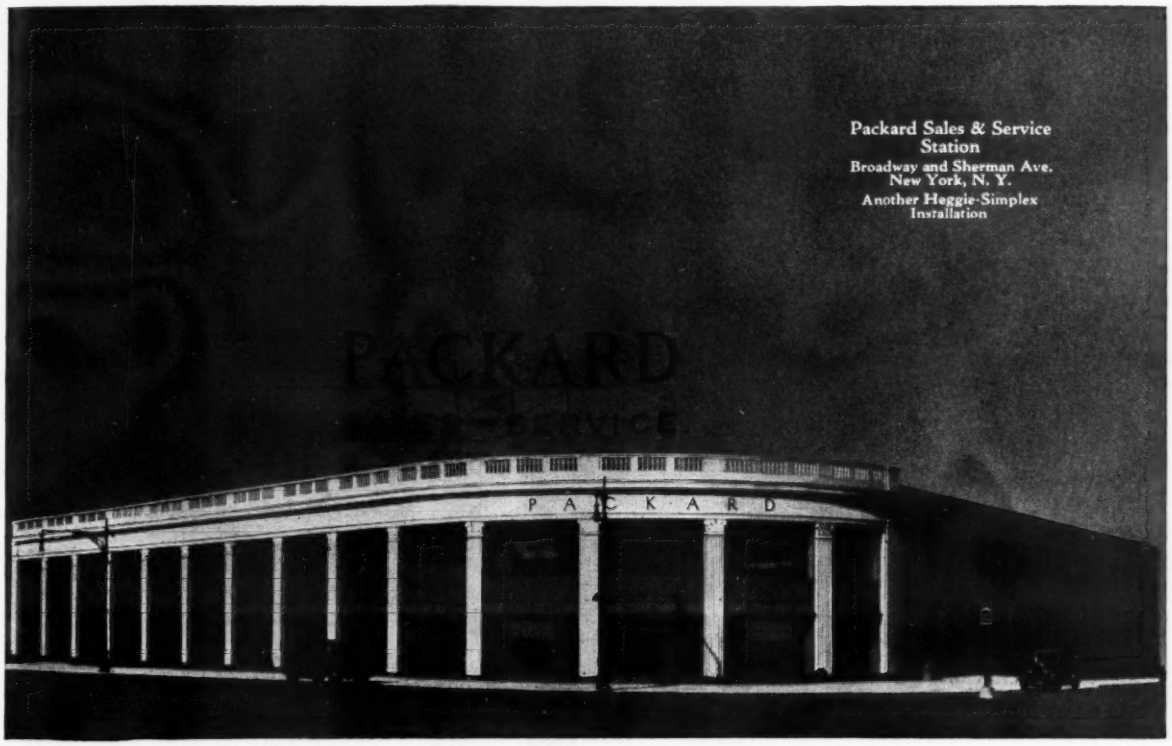

As Careful to Get Value As to Give It

AMERICA'S leading corporations have reached outstanding success through strict insistence on value not only in what they have to sell but in everything they buy. In boiler equipment an ever increasing number of these leaders is turning to Heggie-Simplex for reliable low-cost performance. The savings which they gained are available for your business too. Investigate this most modern of heating boilers today!

Heggie-Simplex Boiler Co., Joliet, Illinois. Representatives in principal cities — telephone and address listed under "Heggie-Simplex Boiler Company."

HEGGIE-SIMPLEX

ELECTRIC-WELDED STEEL HEATING BOILERS

INVISIBLE ELEMENTS

THERE is more to a business and its products than those things which are visible. Behind what you see on the surface lie elements that cannot be expressed in figures or measures of any kind. Such elements as the courage to father a new idea despite discouraging promises of failure; the resolution to hold to ideas in the face of such a remark as "your ideas are too good"; the ability to foresee future needs and to accept these needs as opportunities for giving greater service—these are the Invisible Elements so vital in any successful business. Born of a devotion to progress, these elements become a living part of the products which sustain a business.

* * *

Had the Invisible Elements been lacking, Josam would have continued to follow precedent in the design and construction of drains — would have stopped short of investing time, effort and money to the end of developing new thought and new ideas in drains and other sanitary devices.

Such visible factors as invested capital, production methods, large factories and numerous employees — Josam considers of less importance than the Invisible Elements, in its history of service to the plumbing industry.

To its faith and confidence in the power and permanence of the Invisible Elements, Josam gives credit for the fact that today the finest buildings in America and thousands of other structures are equipped with Josam Products. Josam Products are recognized throughout our industry as the "Standard of America" in design, construction and honest value.

If you have not already received the new Josam Catalog—"G"—a copy will be sent to you on request. Your jobber stocks Josam Products. He can serve you in many ways.

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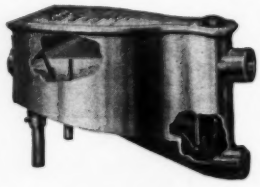
Josam Shower or Floor Drain and Trap, Series 200A, with flashing clamping device.

Josam-Marsh Grease Interceptor



Josam Roof Drain, Series 410S, for wood or concrete roof deck.

There Are No Substitutes for Josam Products

Place this attractive display in a prominent part of your store

There's some place in your store where you can use this attractive piece of lithography to advantage. It may be as a window display, a counter display or what you will—but it should be at work for you to attract attention and arouse interest. The actual sale, of course, is up to you. But that's a comparatively simple matter when you point out the many advantages of "STASCO" Seats.

Take the No. 358, for instance. This well-built, good-looking oval seat is designed to fit any standard measurement toilet bowl—has quality nickeled cast brass hinges—and is finished in "Empire White" sprayed Pyralin. It is fully guaranteed not to crack, craze, peel or turn yellow. Yet its retail price is only $6.50.

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STANDARD TANK & SEAT CO., Camden, N. J.
I'd like to have complete information about "STASCO" Seats and "STASCO" Policies.

Your name.....

Firm name.....

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Special Notice to Plumbing

Domestic Engineering Cooperation with the Plumbing and

The manufacturers here listed have authorized us to send to the plumbing and heating contractors, upon request, their standardized catalog sheets for use in the standardized binders distributed through the Plumbing and Heating Industries Bureau.

These loose sheets are reprints of catalog pages appearing in "Domestic Engineering Catalog Directory." They conform to your industries' standardized catalog page size 8½x10⅝ inches—printed on a good grade of light paper and punched to fit the binder.

If you are assembling a working catalog from standardized catalog sheets, write Domestic Engineering Co., 1900 Prairie Avenue, Chicago, on your letterhead, giving the names of concerns listed below whose lines you are interested in, and we shall be glad to send you the sheets without charge. If you are not using the standardized sheets and binder and wish further information, write to the Plumbing and Heating Industries Bureau of Evansville, Indiana.

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National Steel Tank & Mfg. Co. ..... Bradford, Ill.
Neptune Meter Co. ..... New York City
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Northwestern Chemical Co., The ..... Marietta, Ohio
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Nye Tool & Machine Works ..... Chicago, Ill.

Ohio Brass Co. ..... Mansfield, Ohio
Ohio Heater Co., The ..... Columbus, Ohio
Olsen, H. T ..... New York City

Paine Co. ..... Chicago, Ill.
Para Rubber Co. ..... Newark, N. J.
Penn Engineering Co., The ..... Philadelphia, Pa.
Perfection Stove Co. ..... Cleveland, Ohio
Phillips Drill Co. ..... Chicago, Ill.
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Powers Regulator Co ..... Chicago, Ill.
Radiator Specialty Co ..... Charlotte, N. C.
Randolph-Clowes Co., The ..... Waterbury, Conn.
Rathbun Products, Inc ..... Detroit, Mich.
Rawlplug Co., Inc., The ..... New York City
Reading Brass Works ..... Reading, Pa.
Reed Mfg. Co. ..... Erie, Pa.
Reeves Specialty Co. ..... Denver, Colo.
Reinhardt Mfg. Co., Edwin G ..... Cincinnati, Ohio
Rhode Island Fittings Co ..... Providence, R. I.
Richmond Engineering Co. ..... Richmond, Va.
Richmond Foundry & Mfg. Co., Inc ..... Richmond, Va.
Ridge Tool Co. ..... Elyria, Ohio
Riverside Boiler Works, Inc ..... Cambridge, Mass.
Riverside Foundry & Galvanizing Co. ..... Kalamazoo, Mich.
Robbins, Gamwell & Co ..... Pittsfield, Mass.
Roberts Brass Mfg. Co., The ..... Detroit, Mich.
Robinson Mfg. Co., The ..... Cleveland, Ohio
Rockford Brass Works ..... Rockford, Ill.
Royal Brass Mfg. Co., The ..... Cleveland, Ohio
Rumsey Pump Co., Ltd ..... Seneca Falls, N. Y.
Russell Appliance Co ..... Springfield, Mass.
Russell Mfg. Co., Inc., John M ..... Naugatuck, Conn.
Russell & Co., W. A. ..... New York City
Rutland Fire Clay Co. ..... Rutland, Vt.

Sands Mfg. Co. ..... Cleveland, Ohio
Sanitary Bath Curtain Mfg. Co., Inc ..... New York City
Sanitary Engineering Co ..... Pittsburgh, Pa.
Sanitas Mfg. Co ..... Boston, Mass.
Sarco Co., Inc. ..... New York City
Scadron Brothers ..... New York City
Scaife & Sons Co., Wm. B ..... Oakmont, Pa.
Scott Valve Mfg. Co. ..... Detroit, Mich.
S. E. T. Valve & Hydrant Co. ..... New York, N. Y.
Sherwood Brass Works ..... Detroit, Mich.
Simonds Saw & Steel Co. ..... Fitchburg, Mass.
Simplex Boiler Stand Co ..... Brooklyn, N. Y.
Simplex Mfg. Co ..... Chicago, Ill.
Spencer Regulator Co ..... Salem, Mass.
Standard Elsmere Granite Co ..... Chicago, Ill.
Standard Tank & Seat Co. ..... Camden, N. J.
Standard Water Systems Co. of N. J. ..... Hampton, N. J.
Stark Pump Co ..... Detroit, Mich.
Sterling Faucet Co. ..... Newcomerstown, Ohio
Stringer Brothers Co. ..... Chicago, Ill.
Structural Slate Co ..... Pen Argyl, Pa.
Superbestos Co., The ..... Chicago, Ill.
Swett Iron Works, A. L. ..... Medina, N. Y.

Taylor Co., Halsey W., The ..... Warren, Ohio
Teck Manufacturing Co. ..... Chicago, Ill.
Test-Tite Co ..... Philadelphia, Pa.
Thatcher Co. ..... Newark, N. J.
Thermal Appliance Company, Inc. (New Name—
Taco Heaters, Inc.) ..... New York City
Tillery's Little Janitor Clock Co. ..... Newark, N. J.
Toledo Pipe Threading Machine Co ..... Toledo, Ohio
Trageser Steam Copper Works, John ..... Maspeth, N. Y.
Trenton Brass & Machine Co. ..... Trenton, N. J.
Trimont Mfg. Co., Inc ..... Boston, Mass.
Tryco Products, Inc ..... Westfield, Mass.

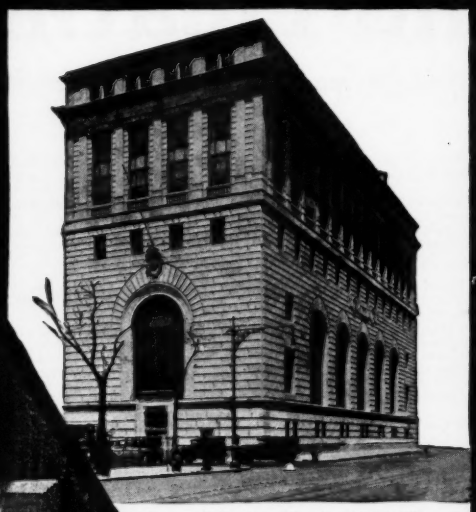
Universal Smokeless Boiler Co ..... Ravenna, Ohio

Van Arnam Mfg. Co. ..... Fort Wayne, Ind.
Vanderman Mfg. Co ..... Willimantic, Conn.
Vinco Co., Inc. ..... New York City
Vogel Co., Joseph A. ..... Wilmington, Del.
Vulcatex, Inc ..... Chicago, Ill.

Wade Iron Sanitary Mfg. Co. ..... Chicago, Ill.
Walworth Company ..... Boston, Mass.
Ware Coupling & Nipple Co ..... Ware, Mass.
Warnock Manufacturing Co ..... Worcester, Mass.
Washington Metal Products Co ..... Washington C. H., Ohio
Watts Regulator Co. ..... Lawrence, Mass.
Weis Mfg. Co., Inc., Henry ..... Elkhart, Ind.
Wesely Co., Chas. ..... Chicago, Ill.
Wessels & Sons, D. D. ..... Detroit, Mich.
Western Metal Specialty Co ..... Milwaukee, Wis.
Western Wire Products Co. ..... St. Louis, Mo.
Wheeling Machine Products Co ..... Wheeling, W. Va.
White Flush Valve Mfg. Co. ..... Denver, Colo.
White Steel Sanitary Furniture Co ..... Grand Rapids, Mich.
Whitlock Coil Pipe Co. ..... Hartford, Conn.
Wilkins Co., Geo. H. ..... Chicago, Ill.
Wilks Mfg. Co., S. ..... Chicago, Ill.
Williams & Co., J. H. ..... Buffalo, N. Y.
Woodward-Wanger Co. ..... Philadelphia, Pa.
Worcester Brush & Scraper Co. ..... Worcester, Mass.

"X" Laboratories ..... New York City

Yeomans Brothers Co. ..... Chicago, Ill.
Yost Mfg. Co ..... Meadville, Pa.



Central Savings Bank—N. Y. City
Plumbing Contractor—
James Armstrong
Architect—York & Sawyer

COHOES

There's No Substitute For Cohoes Pipe

IF you want permanency—leak proof, rust resisting, non-corroding pipe, specify Cohoes Genuine Wrought Iron Pipe. You'll get pipe that has kept the faith with architects and contractors for over 74 years. Hand Puddled by the original process of the founder—the *only* method known that insures longevity.

Our HANDBOOK contains Pipe Facts of important information that makes it a valuable reference work. We will be pleased to send you a copy.

COHOES ROLLING MILL CO.
COHOES, NEW YORK
BRANCH OFFICES: PHILADELPHIA · CHICAGO · LOS ANGELES · NEW YORK
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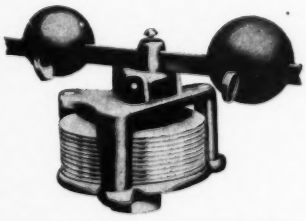
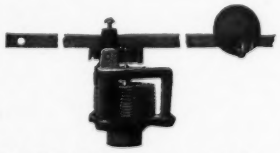
Fifteen Years Ago The Fulton Sylphon Company Introduced Accurate Automatic Damper Regulation



No. 924, Sylphon Damper Regulator Extra Sensitive.



No. 22-J. Sylphon Damper Regulator For low pressure steam boilers with light dampers.

SYLPHON Damper Regulators built around the Sylphon Bellows, *a one-piece seamless, solderless, flexible and durable diaphragm* solved for all time the problem of efficient checking and increasing drafts in proportion to steam pressure or water temperature.

Their appearance marked the passing of the old style damper regulators with their faulty diaphragms. *Flat rubber discs* deteriorated or changed form. *Flat metal* or corrugated discs broke and even when new had a slight snap action. *Built up diaphragms* leaked or broke at the soldered edges.

Sylphon Damper Regulators Prevent Fuel Waste and Save Fuel Costs

The owner of the towering hotel, apartment, office building or modest home, who studies the scientific action and the care and wear proof construction of Sylphon Damper Regulators, will be quickly convinced.

Thirty-five manufacturers of boilers, long ago made Sylphon Damper Regulators standard equipment. They have been successfully used on hundreds of thousands of heating plants and are specified generally as the most reliable.

There Is a Sylphon Damper Regulator for Every Steam, Hot Water or Vapor Heating Plant

Send for fully illustrated and descriptive literature covering the various Sylphon Damper Regulators, their construction and installation.

The Original and Only Genuine
SYLPHON BELLOWS

The Motor element in all Sylphon Instruments is the most accurate, durable and flexible temperature control unit known to science.

THE FULTON SYLPHON COMPANY, *Knoxville, Tenn., U. S. A.*

Sales Offices: New York, Chicago, Philadelphia, Boston, Detroit All Principal Cities in the U. S. Dept. K

Gentlemen:
We are interested in Sylphon Damper Regulation for

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Company_____

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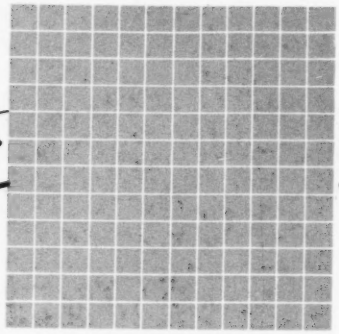


144 SQUARE INCHES.. FOR EVERY RATED FT..

"144"

the H.B. Smith New

full surface radiator has *144 square inches of ... radiating surface for every rated foot*

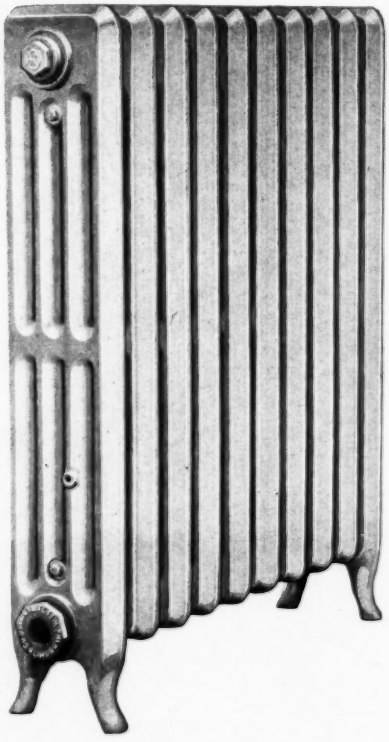
A centipede has 100 feet. You can cut off quite a number, and still he can walk, but he is no longer a centipede, and no longer 100 percent efficient.

Just so, one foot of radiation is one square foot of surface, or 144 square inches. You can cut out a number of those square inches, and it will still radiate heat, but you no longer have a 100 percent efficient foot of radiation.

In the H. B. Smith new "144" radiator, there is no skimping. Every square inch that is supposed to be there, is there.

Just as H. B. Smith Boilers have an abundance of Fire Surface, so, too, the new "144" radiator has 144 square inches of radiating surface for every rated foot.

Write us for complete information. Also for information on the H. B. Boiler tailored handsomely in mountain ash scarlet; and on our new gasket which saves time and money on installations of our boilers. The H. B. Smith Co., Dept. A-51, Westfield, Mass.



THE H·B·SMITH
BOILERS & RADIATORS
Used in fine homes and buildings since 1860

The H. B. Smith Boilers for steam, hot water and vapor heating; radiators; and hot water supply boilers; for every type and size of private home, office building, factory and public building.

Sales Offices and Warehouses:

New York: 10 E. 41st St.
Boston: 640 Main St., Cambridge
Philadelphia: 48th St. & Grays Ave.
Cleveland: 1108 Webster Ave., S. E.
Westfield, Mass.

A Letter from Harry G. Nye

August 18, 1928.

To the Plumbers and Steamfitters of the U. S. A.

Fellow Citizens:

I understand that most of the electioneering in this campaign is going to be done over the radio. As they can't hand you a cigar over the radio, this looks like a great step forward. When I was young they depended on cigars to carry an election, and they were certainly strong enough to do it. The first cigar I ever smoked was a campaign cigar. The fellow who gave it to me won by one vote, but he wouldn't have, not if I had been old enough to vote, and could have gotten to the polls.

They won't be able to hand us campaign cigars over the radio, but they will probably think up something else that is just as bad. If Herbert Hoover sings "The Road to Mandalay" I'm going Democratic, that's all. I know the road to Mandalay so well I could drive there backwards in the dark. And if Al Smith sings "Ready for the River" I'll vote her straight Republican, even though it is Green River he is talking about. But probably they will both tell me to "Laugh, Clown, Laugh," and then what'll I do?

And if some soprano starts to warble "Melancholy Baby," here is one melancholy baby who will tune her out and try to get some static, that's all. Let 'em give us something new, like talking about the tariff. Everybody now is in favor of the full dinnerpail. The only difference is that some mean going to work with it and some coming home from the corner with it. And then there is farm relief. The only thing the city slickers have ever done to relieve the farmer was to sell him Brooklyn Bridge or the Masonic Temple.

I think the radio political meetings will be a great improvement. You won't have to watch the wilting of the speaker's collar, or wonder what is in the pitcher. You will be able to hear the band without having your attention distracted by the boil on the back of the leader's neck. And if the speeches are dry, or wet, you don't have to get up and go home, because you are already home, and you can go to bed instead of getting up. You can't shut the speaker up, but you can at least shut him off.

Many people think that the greatest inventor in the world's history was the man who invented the radio, although there are a few who are inclined to favor the fellow who invented the curved flask. It is all a matter of opinion. One thing is certain: the greatest invention in the pipe-tool line was the Nye Die. That isn't a matter of opinion but a matter of fact. They are slicker than a politician, and don't work any harder than a guy with a city hall job. As far as the plumbers and steamfitters are concerned, the Nye Die is the unanimous choice.

Make me prove it,

Harry G. Nye

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All rights reserved.

Nye thin blade cutter wheel, made to fit all standard makes of pipe cutters, and guaranteed against breakage in use. Made both in smooth and knurled edge.

Nye No. 2
(Toledo Type)

GEARED THREADING DEVICE
Improved

Capacity 2½ in. to 4 in., inclusive.
Net price complete.....$50.00
West of Rocky Mountains..... 55.00

FREE TRIAL—ABSOLUTELY GUARANTEED

Nye Solid Dies

The Nye patented feature of removing every alternate tooth in the back of the die to reduce friction is used in Nye Solid Dies. These dies are hardened and tempered in oil and made of finest tool steel.

Nye (Toledo Type) Chasers

Fit Nos. 1, 1-A and 2 NYE (Toledo Type) Die Stocks.

No. 1, 1 in. to 1½ in.....$ .75 per set net
No. 1, 2 in..... 1.25 per set net
No. 2, 2½ in. to 4 in..... 3.60 per set net

Nye Closet Spud Wrench

Net Price.....$0.50

OTHERWISE KNOWN AS

THE NYE TOOL & MACHINE WORKS

MANUFACTURERS OF HIGH GRADE PIPE TOOLS

4120-30 Fullerton Avenue Chicago, Illinois

Good plumbing is plumbing *forgotten*

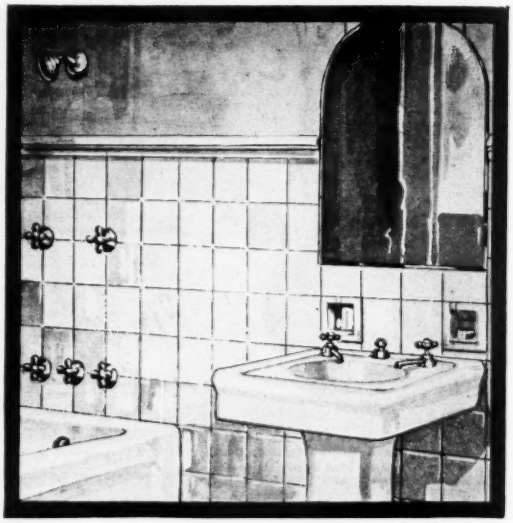
A good job of plumbing is one that is forgotten because it doesn't require attention or repair.

In homes where the plumbing is forgotten—the plumber is remembered when the next job comes along.

Hays Plumbing Fixtures are *more* than designed. They are engineered to do their work right and efficiently—to do it with little or no wear and to have the proper adjustments to fit every need of installation or replacements.

Your customers who want a low bid on plumbing work would probably be glad to specify Hays Plumbing when they know that it may save hundreds of dollars in the future.

Damage behind walls is damage indeed. Hays Plumbing behind the walls is plumbing forgotten.



HAYS BUILT-IN FIXTURES

All Valve Seats are so designed that wear comes on replaceable parts and all parts requiring future attention are conveniently located for easy accessibility.

Hays Exposed Fixtures are right up to the minute in design in a variety that is sure to please.

Hays Chromium Plated Fixtures and Trimmings are exceptionally heavy, brilliant and long lived.

A Hays Chromium Fixture will stay bright for a lifetime without peeling or chipping, staining or tarnishing.

Write your wholesaler for catalog and prices.

HAYS MANUFACTURING CO.
ERIE, PA.

HAYS

A HAYS JOB *is a* CREDIT *to you!*

BUILT-IN FIXTURES

Competent attorneys, giving their opinions, offer free legal service to all subscribers of "Domestic Engineering."

Between Ourselves

"Unless they are discounting or paying accounts when due, plumbers are not making money." R. B. Turner, Nashville, Tenn.

In the midst of the "dog days" as we are, it is only natural that our minds instinctively turn to cooling drinks and well preserved foods. The front cover of this issue rather tempts one's appetite, doesn't it? In spite of the fact that no ice is visible, the refrigerator has the appearance of coolness. It is cooled by gas flame, a further description of which appears in this issue.

Your Editor

THE heating contractor who has spent all of his energy and time in the fight against cold is now taking it up as a friend and business asset, and dealing in automatic refrigeration. One of the most recent developments in refrigeration is the use of gas to produce the cold. It is known as the direct heat type of automatic refrigeration, which sounds like a paradox, but isn't. The article in this issue called "Gas Refrigeration" explains how heat makes cold. It is illustrated with several drawings, and a photograph of the show window of a plumbing and heating merchant who is selling gas refrigeration.

A LOT of interesting things happen to the plumbing and heating contractor during the course of a year, and some of them have a very amusing aspect in retrospect. Whenever plumbing and heating men gather, they tell of amusing incidents on this job and that, especially when old friends get together. Jerry Dolan has the ability also to write of his amusing and interesting experiences, and his "Dolan & Olson" stories are well known in the industry. This week he writes again of "Me and Hank." He tells of several unusual experiences, tinged with humor, but backed up by sound business sense and experience.

CAN the wet vent be universally adopted without danger? Is the use of the wet vent in accord with the principles of first class sanitary engineering? If adopted generally, will it result in installations that are unsatisfactory and insanitary and a possible source of danger to the public? These questions are all discussed in an article in this issue called, "The Wet Vent." The article is a discussion of the subject by two men, each well known in his own country as an authority on sanitary matters. Their comments on the subject are naturally interesting to every member of the plumbing fraternity, as the wet vent is a subject which frequently comes up for consideration and discussion.

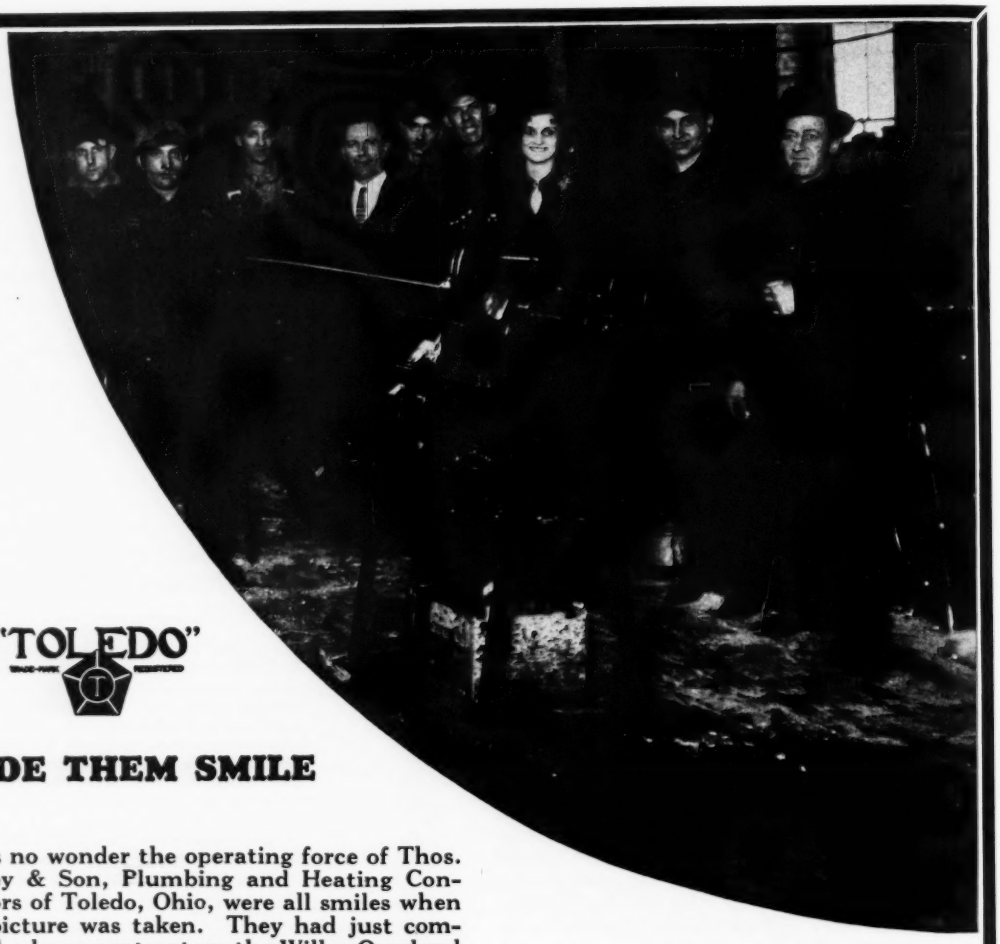
GUS RUDOLPH, master plumber of the Bronx, New York City, writes as follows: "Please let me take this opportunity to express praise for your magazine, which, through close contact, I have come to look at as partly mine. It surely has been a priceless treasure to me, and is more of an aid to me in plumbing than any books I've studied. There is no comparison."

COLLECTIVE as well as individual assaults on the buying public for their business for the plumbing and heating field have been made in many places. In Richmond, Va., as a result of an exposition, inspired by the master plumbers and heating contractors, and aided by the manufacturers and wholesalers, the industry is better known than ever before. The success of the exposition has made the trade in that city consider seriously the advisability of establishing a community showroom for further exploiting the industry.

IS A PRESSURE system of hot water heating really better than the open tank or gravity job? This question has been asked time and time again by those who believe that, under all conditions, the pressure system is not necessarily superior. In this issue the subject is discussed by L. H. Thomas, and commented on by Harold L. Alt. It will be a story of interest to everyone who has ever asked that question, and to many who haven't taken occasion to question.

IN NEXT week's issue another merchandising section makes its appearance. This section points out some of the uses of the Bath a Day material which has been prepared by "Domestic Engineering" in conjunction with the Bath a Day campaign. It gives illustrations of how plumbing contractors have gained business and prestige by the use of these helps, and how the National Association of Master Plumbers used it successfully at the time of its annual convention in Memphis, Tenn., last June.

The man who is so busy that he does not have time to read his trade paper is like the man who was so busy chopping wood that he did not have time to sharpen his axe



"TOLEDO"

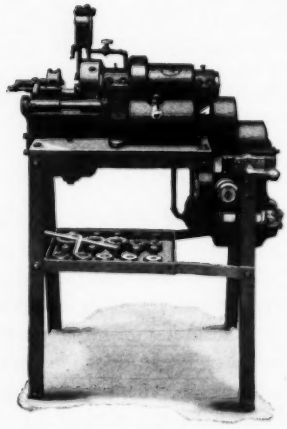
MADE THEM SMILE

It is no wonder the operating force of Thos. Kewley & Son, Plumbing and Heating Contractors of Toledo, Ohio, were all smiles when this picture was taken. They had just completed a large contract on the Willys Overland Company factory extension. There were approximately 17,000 threaded joints on this job, all cut with "TOLEDO" No. 1000M pipe machine, and on the test-out not a single leak developed.

They also advised us that they were enthusiastic over the remarkable efficiency of these time and labor saving machines.

This is only one more of the dozens of similar cases that have been brought to our attention by contractors everywhere, telling us of their experiences with "TOLEDO" No. 1000M pipe machines.

You can no longer afford to continue the old method of handling piping jobs, when the "TOLEDO" No. 1000M pipe machine is available, at the remarkably low net price of $325.00. (West of Rockies $341.25.) F. O. B. Toledo.



THE TOLEDO PIPE THREADING MACHINE CO. TOLEDO, OHIO

NEW YORK OFFICE, 72 LAFAYETTE ST.

DOMESTIC ENGINEERING

Vol. 124, No. 7
Whole No. 1862

The Plumbing and Heating Weekly

Chicago, Illinois
August 18, 1928

OBSERVATIONS

More Sales

In the report recently released on the meeting of the Plumbing and Heating Industries Bureau, at Philadelphia, it was stated that the bureau's sales promotional campaign in Philadelphia had already resulted in 418 more remodeling jobs this year than during the same period of last year, without the campaign. Earlier it had been reported that, of the 1856 master plumbers and heating contractors registered in Philadelphia, only 350 were of the type eligible for campaign membership. Our readers will recall that we used this latter example to illustrate the fact that we have so often stressed—that a small minority of the total number of master plumbers and heating contractors do the bulk of the business and that a successful selling plan by the manufacturer or wholesaler is one which concentrates on this small minority to the exclusion of those who do so little that they will not repay, in business, the effort expended on them. Incidentally, we pointed out, too, that 350 could hardly constitute the total number of worth while master plumbers and heating contractors in Philadelphia, but that that number probably represented the worth while group of those interested in such a campaign as the bureau was inaugurating.

Now, with this report of an increase in remodeling jobs of 418, we can safely assume that it was made by those master plumbers and heating contractors who tied in with the bureau's campaign and with whom manufacturers and wholesalers worked. Therefore, it furnishes the further argument that concentration on the worth while outlets in this industry, to the exclusion of the rest, will not mean that less business will be done—there will be more.

Done by Select

Many manufacturers and wholesalers look upon a proposition which entails throwing away a majority of their apparent prospects and concentrating only on their provedly worth while prospects as one which will make them sacrifice considerable volume. On the other hand, our argument has been that the same time spent on the worth while prospects which has heretofore been scattered among all kinds of prospects will necessarily result in more business. It is not that the worth while prospects can not do the business done by these others. They can—and better.

This is proved true in Philadelphia. It is true everywhere. 35 per cent of the master plumbers and heating contractors do 77 per cent of the total business done. Manufacturers and wholesalers should appreciate the fact that it is such a group that offers the best chance for business and that co-operation with such a group will result in more and better business for everyone.

Not Less —More

Installing Oil Heat

In a manual on "Installing Oil Heat" recently issued by the Oil Heating Institute it is said, "Oil burners constitute merely one important element in a heating system. They will not overcome the troubles of a faulty boiler or of incorrectly installed radiation. . . . . Obviously a correct installation by the dealer is of paramount importance."

All of which means that the dealer must be one who knows heating, who knows, in the case of an old home, whether the heating plant is efficient and who can, in the case of a new home, put in a heating system which will function with an oil burner. Such a dealer is the heating contractor.

There are doubtless a number of oil burner manufacturers whose experience bears out this statement. Service calls have a tendency to discredit any piece of equipment. But if that equipment is only part of an important home service—the heating system—it may be blamed for faults in the system. A competent heating contractor would eliminate those faults before installing an oil burner.

WHAT IS BUSINESS?

In an address before the recent National Wholesale Conference, Robert R. Ellis, vice president of the Chamber of Commerce of the United States for the southern division, formulated this philosophy of business: "As I see it, there are five distinct fundamental elements in distribution—always have been and always will be. They are the raw material producer, the manufacturer, the wholesaler, the retailer and the consumer. None can profit at the expense of the others. None can exist without the performance of the functions of the others." This seems to fit the business of plumbing and heating. Each branch has its function to perform. None can profit without the performance of the other.

On the job with Dolan & Olson

Appearances may be very deceptive

Me and Hank get a few lessons in the gentle art of making a profit in business

"GRAB the phone," says Hank. "Some dude is in trouble with his plumbing and wants to talk to some one that is supposed to know all that there is to know about plumbing."

Hank had a peeve against the world and all of its neighbors and didn't care who knew it either. Seems that several years ago, a chap appealed to Hank for some help in solving a heating problem, and Hank, like the good egg that he is, called around at this chap's house one evening, took one look at the boiler and the smoke pipe and spotted the trouble that all of the other experts in town had failed to uncover. Just a case of turning the smoke hood on top of the boiler and eliminating the use of three 90-degree elbows by having the sheet metal man make a special smoke pipe.

"ONE GOOD TURN—"

FOR which information this chap appeared to be duly grateful until this morning. Hank heard that this chap was about to build a new home and thinking that he had paved the way to the job several years back, he dropped in to see this bimbo, talked weather, autos and flying as a preliminary to heating and plumbing and then advanced the thought that he had heard that this chap was about to build a new and larger home, to which His Highness replied that such was indeed the case. But he regretted to state that he had awarded the whole contract, building and mechanical equipment, to the general contractor and that the general contractor had already sublet the plumbing and heating to the very chap who had balled up the heating plant in this chap's present home.

Hank called attention to this fact and His Nibs countered with the statement that money talks and he knew that this chap could handle the job for less money than Dolan and Olson on account of him doing his own work and being without either a Big Ben or an Ingersoll so he just naturally followed the old farm idea of getting up with the roosters and staying up almost as late as the chickens.

Like the lawyer, Hank should have sold his advice at its face value in which case this chap having paid for a lesson would have had a better memory and perhaps Me and Hank would have landed a job without any competition.

However, I grabbed the phone and found that "Shorty" Richards was in a heap of trouble. All set for a week end fishing trip. Just getting into the car when the frau hollered that there was a leak in the dining room ceiling. So "Shorty" had looked at the ceiling of the dining room and then at the floor of the bath room above, added two and two and found that the answer was plumber. I promised to beat the fire department for service and efficiency, all of which was mighty good news to "Shorty" who promised me a good sized pike upon his return.

Took one of the boys out to the job and found that it was the usual repair job of that type, a broken wiped joint where the bath waste was wiped into the lead bend under the closet. 'Course it had been doing noble duty

for better than thirty years, so the plumber lad that had wiped the original joints had done a good job.

Making replacements of that kind are all in the day's work for "Okkie" so I never thought any more about it until a week had passed when the phone rang again and "Shorty" said to stop on the way home and pick up a pike.

I reached his house, stepped around to the back door as is the fashion in plumberdom, and found "Shorty" cleaning fish. His greeting had all of the ear marks of a great big question.

"Hello, you big stiff, there's your fish. Isn't he a beaut? And say, fellow, what the heck kind of a plumber was that chap who fixed up the bath room?"

PAID IN FISH

SOUNDED like trouble right away, but still he had just given me a dandy fine fish and he hadn't gotten the bill yet because it hadn't been made out, so it looked like a fine place to answer his question with one of my own, so I replied that Okkie was a dang good plumber and "Was his work satisfactory to Mrs. Richards?"

And just then Mrs. Richards came out and broke right into the confab by saying, "Oh, Mr. Dolan, that plumber was just about the finest man that ever came into our house. When he said that he would have to take up part of the bath room floor, I thought I'd die, but he took it up so carefully that not a bit of dust came down stairs. Then he showed me what he had to do and I watched him tearing out that old pipe and putting in the new pipe, and I surely thought that he would burn his hands, but anyway, I went over to my sister's in the afternoon and when I got back the new piping was all in place and the next morning he came around and replaced the flooring and honestly that floor looks better than it did before. Why, that man is a combination plumber, carpenter and pattern maker and is without doubt the neatest and cleanest plumber that I ever saw."

"Shorty" said, "Well, the Mrs. has told the whole story, so send in your bill and I'll send you a check." Which are, after all, the sweetest words in the English language and can never be heard too often for me.

Jerry gets a pike on the strength of "Okkie's" workmanship

Mrs. Dolan was busy in the kitchen one afternoon last week when she heard some one screaming, "Mrs. Dolan, Mrs. Dolan, come quick!" So she rushed out of doors and met the woman from the next house, who immediately changed her appeal to "Get a plumber! Get a plumber!" So Mrs. Dolan followed her back into the house, at least she started to follow her into the house when she noticed water trickling over the door sill and across the porch, so she hustled back into our house and phoned the shop. I got the call and sure made one hurry-up trip.

Found that Mrs. Peterson, the lady next door, had been out for the day. In fact, after getting breakfast for hubby and the kids, she had cleaned up the house and the kids, sent the kids over to Mother's for the day, taken a tub herself, slipped into her best bib and tucker and left for the day.

Had a dandy fine day, nice lunch, nice chin-fest with the other "girls" and looked forward to a pleasant dinner and evening, but when she unlocked the front door the day was ruined. There was water on the floor, there was water dripping from every lighting fixture, there was water running and tumbling down the stairs, there was water, water, water everywhere and more and more of it coming all of the time.

One look and she had put in a call for help, aid and assistance and when I got there she and Mrs. Dolan were standing in the front yard wondering what had happened, and Mrs. Peterson was wondering what "Charlie" would say.

Without waiting to answer their questions, I waded through the living room and down into the basement, located the water meter and shut off the water. For once luck was with me because the meter and valves were housed in a concrete pit that wasn't filled with dirt, ashes and sundry junk.

Then I started to look for the trouble. One of the children had apparently decided to give her cloth doll a

(Continued on Page 52)

Closed and Open Hot Water Heating Systems

THE FOLLOWING question, or questions very much like it, has been received from a number of readers of "Domestic Engineering."

"WHY DOES A CLOSED HOT WATER HEATING SYSTEM HEAT WITH SMALLER PIPE AND WHAT ARE THE PROPER LIMITS IN SIZE?"

There appears to be an increasing interest in hot water heating judging from the number of letters received on this subject and all contractors who have hot water heating questions in mind are urged to send these questions in to "Domestic Engineering."

An answer to the question printed above and an explanation of the principles involved are given below. This was prepared by George W. Roberts.

MR. ROBERTS' REPLY

THE first question opens an extensive field that would require many pages of text and some complicated mathematical problems to explain from a technical standpoint. However, this theory has been proved by practical demonstrations and the explanation can be stated in simple language as follows:

The motive power that causes water to circulate when heated, is the difference in weight between the two columns of water commonly known as flow and return. This power is very slight and anything that will increase the difference in the temperature between the flow and return will automatically increase the velocity of flow.

It is generally understood that in an open expansion tank system the water cannot be heated above 212 deg. or it would form steam that would be discharged through the overflow or vent, while in the closed system temperature as high as 240 deg. may be carried which increases the cooling effect of the radiators and causes a greater difference in the temperature in the flow and return. This increased difference also causes a corresponding difference in the weight of the two columns, increasing velocity and allowing smaller pipe to be used.

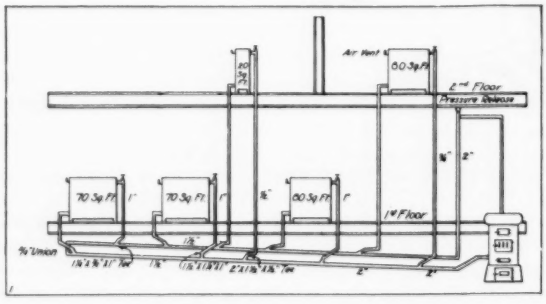


Fig. 1

Understanding this principle of circulation it is apparent that only such fittings as are absolutely necessary should be used in hot water heating.

The proper size of piping to use in closed systems of hot water heating has been the subject of an extensive investigation and the result seems to be that the main and branches should be determined from the combined areas of the valves connected.

The writer has adopted a rule of not ending mains less than 1¼ inch even though the last radiator only required a ¾ inch valve.

The following table of valve sizes has been used several years with perfect results.

First Floor		Second Floor		Third Floor	
Sq. ft.	Inch	Sq. ft.	Inch	Sq. ft.	Inch
1 to 60	¾	1 to 40	½	1 to 60	½
61 to 100	1	41 to 100	¾	61 to 120	¾
101 to 150	1¼	101 to 150	1	121 and up	1

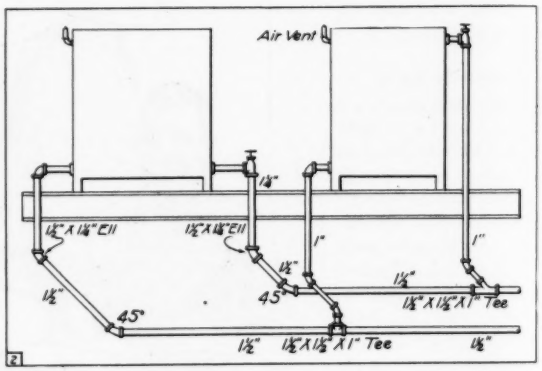


Fig. 2

Assuming a main must supply four ¾ inch and three 1 inch valves, the size would be found as follows:

The area of three ¾ inch equals.....1.76
three 1 inch equals.....2.34

Total 4.10

or a 2½ inch pipe having an area of 4.90 as shown in the following table.

Of course it is not necessary to run this size the total distance but reduce the size as connections are taken off.

Approximate Pipe Areas

¾ inch	.44	2 inch	3.14	4 inch	12.56
1 inch	.78	2½ inch	4.90	5 inch	19.63
1¼ inch	1.22	3 inch	7.06	6 inch	28.27
1½ inch	1.76	3½ inch	9.62		

Answer to the Second Question

We are inclined to think that the sketch Fig. 1 is incorrect so far as the connections to second floor radiators are concerned, not because there would be no circulation but it is wrong in principle. When the water is admitted to the radiator it begins to cool and should be allowed to descend as it cools following natural laws. A circulation in the first floor radiator would be forced by the static head of the main riser, which is much higher than the radiators. The remodeled job as shown by Fig. 2 shows the last radiator connected, both flow and return, at the bottom, as all should have been if natural laws were to be followed. There is no expansion tank shown and it is our opinion that the upper radiators would soon fill with air at the top stopping circulation and making it necessary to add water frequently.

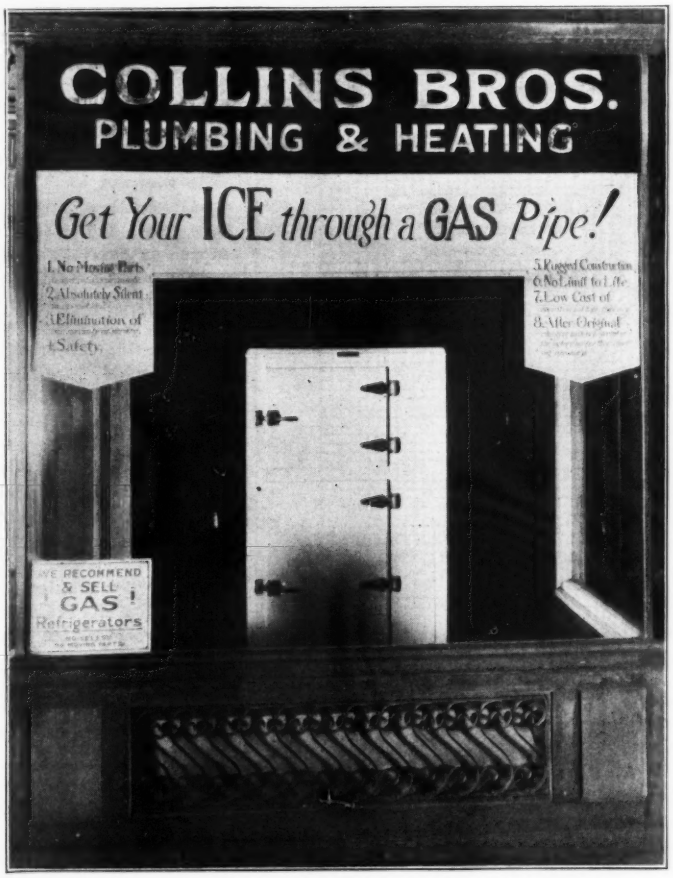


Fig. 1.—Gas refrigerator exhibit in show window of a heating contractor

Refrigeration has played a most important part in modern development.

It is surprising to know that only forty per cent of American houses have refrigerators, although we spend over $300,000,000 for ice. The future of refrigeration presents tremendous possibilities.

Gas Refrigeration*

THE HEATING contractor and engineer who has been devoting all his energy to fighting cold is now making it his friend and is making it work for his profit and for the benefit of humanity. It is only within the last decade that we have heard about cooling of theatres and other public buildings. Now every up-to-date theatre must have its cooling system and it has been predicted by some of the foremost engineers in the field of thermal engineering that it will not be long before dwellings will be so cooled.

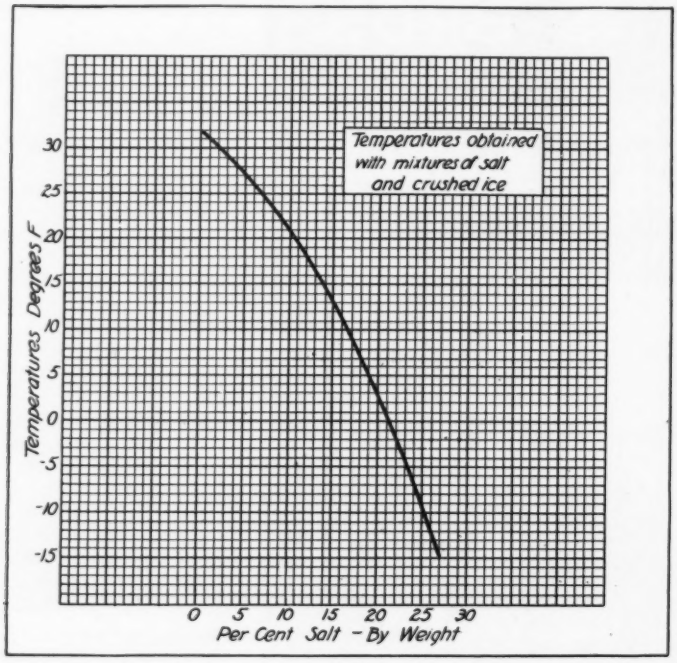
A development of equal significance is the advent into the household of the direct heat type of automatic refrigerator. This sounds like a contradiction and a violation of the law of thermodynamics, but every refrigerating process which uses mechanical means goes back to heat in its basic form.

There are two general types of automatic refrigerators on the market, the gas refrigerator and the electric refrigerator. The gas refrigerator utilizes the heat directly. In the electric refrigerator there is a wider gap between the source of energy and its use. In the electric refrigerator (1) coal is burned to produce steam, (2) steam is used to produce power, (3) power is used to produce

* Much of the information given in this article was abstracted from data which appeared in "Natural Gas," published by the natural gas department of the American Gas Association.

electricity, (4) electricity is used to produce mechanical power, (5) mechanical power is used to produce refrigeration.

Most foods cannot be stored in warehouses like pig iron or gas ranges without deterioration. As long as the temperature in the food preserving chamber or refrigerator does not rise above 50 deg. F. the principal foodstuffs may be kept palatable and fit for human consumption for several days at least. At temperatures between 50 and 60 degrees, bacteria in foods multiply five hundred times as rapidly as at temperatures between 40 and 50 degrees F. Decomposition practically stops and we are assured of better food and less waste due to spoilage if we keep our ice-box "north of fifty."



Above, Fig. 2

Right, Fig. 3

Nero cooled his wines with snow carried from far off mountain tops as did Alexander the Great when he treated his troops to snow cooled wines. Sir Walter Scott tells us about the frozen sherbet that Saladin, Mohammedan leader, sent to his valiant enemy, Richard the Lion Hearted, while the latter was ill with fever.

Lord Bacon, early English scientist, recognized the usefulness of controlled "cold" and his devotion to experiments on this subject probably caused his death. It is recorded that he "caught his death of cold" by alighting from his carriage one winter day and stuffing snow into a chicken to see if it would keep.

Evaporation Basis of Refrigeration

Refrigeration by evaporation was extensively practiced by the early Egyptians and members of other equatorial tribes. In some places water and wines were cooled by placing them in porous earthenware. The seepage of liquid through the vessel evaporated and in doing so extracted heat from the remaining liquid.

Food was also preserved for a short time by wrapping it in moist cloth. Evaporation of the moisture extracted heat from the food. This method of cooling water and foods is still used with considerable success in desert lands and other places where ice is not obtainable.

The Advent of the Ice Box

It was not until the early part of the nineteenth century, however, that the ice-box came into use. Ice cut from ponds and lakes and stored in specially designed buildings for summer use was then the only kind of ice available. However, natural ice could not be depended upon to supply the ever increasing demand for refrigerating material. About a hundred years ago, Michael Faraday, one of the outstanding pioneers of scientific research, condensed ammonia gas to a liquid by the application of pressure. This discovery lead to what is now the ninth largest industry in the United States. the manufacture of artificial ice.

In 1858 a Frenchman developed the first ice making machine which utilized a solution of ammonia and water. The first purely mechanical machine for making ice was developed by Dr. Wm. Allen in 1775 and the first American patent on a practical ice manufacturing process was granted to Dr. John Gorrie of Apalachicola, Florida, in 1850. A statue of Dr. Gorrie may be seen in the National Hall of Fame in the rotunda of the Capitol at Washington and the fact that he was selected to represent Florida is not only a tribute to this genius of refrigeration but indicates how highly Floridans esteem the promotion of human welfare.

David Boyle, of the United States and C. P. G. Linde, of Germany, in 1873, introduced the first successful ammonia compression machine.

The cup contains a small quantity of ether. The saucer holding the cup contains about one ounce of water. When the ether is made to evaporate very rapidly by blowing air through it, the water in the saucer freezes

THREE HUNDRED MILLION DOLLARS PER YEAR FOR ICE

TODAY, more than 6,500 ice manufacturing plants, with an invested capital of approximately $1,000,000,000 are selling more than $300,000,000 worth of ice per year. Of this amount, approximately $1,300,000 worth is sold daily during the summer months. Yet, it is estimated, that only 40 per cent of the nation's families support ice boxes, and, according to statistics obtained from the National Association of Ice Industries, the 1926 consumption of 59,700,000 tons of ice will have increased to 100,000,000 tons by 1940.

The use of ice and other refrigerating mediums is steadily increasing. Per capita consumption of ice has risen in the 10 years, between 1917 and 1927, from 680 to 1,040 pounds.

Of the 27,000,000 homes in the United States only 12,000,000 have ice boxes and it is expected that about 2,000,000 will be sold before the beginning of 1929.

Below is a table showing percentage of yearly sale of ice compiled from information supplied by ice dealers in 160 American cities:

January	2.60%
February	2.00%
March	3.76%
April	5.54%
May	9.57%
June	13.50%
July	17.00%
August	16.20%
September	17.40%
October	6.21%
November	3.52%
December	2.70%

In addition to the enormous quantity of manufactured ice consumed by the American public the harvesters of natural ice—ice cut from lakes and ponds during the winter months and stored in suitable warehouses for summer consumption—contribute almost 20,000,000 tons more.

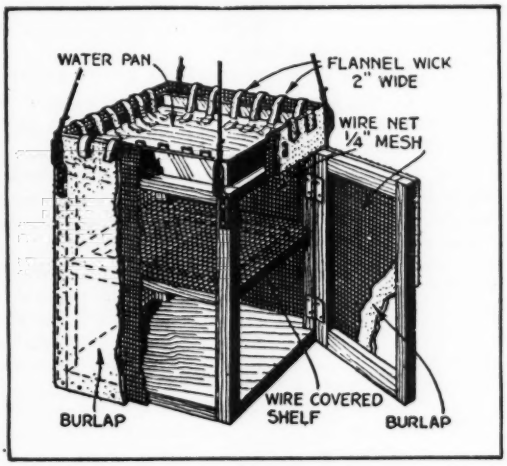


Fig. 5.—The Arizona ice box. Evaporation from the wet burlap covering keeps the contents cool

Refrigeration enters somehow into nearly every article of commerce. Whether it is to cool the air of factories or places of amusement, the preservation of food, or plays a part in chemical processes, man-made "cold" is truly one of the main supports of modern civilization. It has widened markets, reduced enormous bacterial losses, lengthened human life by increased sanitation, raised prices to the farmer, orchardist and cattle raiser and has lowered them to the consumer.

Hundreds of thousands of electrically operated compression type of household refrigerators will be sold in the next few years, but a public educated to the simplicity and quiet operation of the gas refrigerator can be depended upon to give it proper recognition in the field of refrigeration.

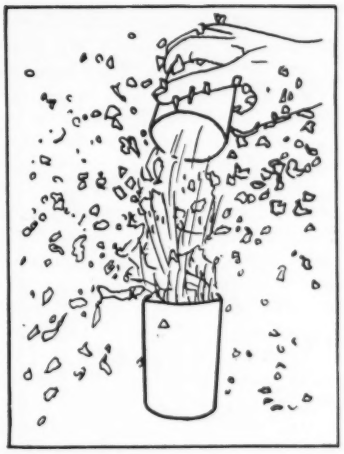


Fig. 4.—Showing how ice may be formed instantaneously by pouring water into methyl chloride. The water literally "explodes" into ice

The Electric Refrigerator

The rapid development of the newest plaything of finance and "big industry," the electrically operated household refrigerator bids fair to become one of the world's mighty industries. According to United States Commerce department statistics, about 75,000 of these machines were installed in 1925. This figure leaped to 250,000 in 1926. At the beginning of the year 1927, approximately 390,000 of these mechanical refrigerators were in use and experts predict that the end of the present year the total in use will be well past the 500,000 mark.

With very few exceptions, all of these electrically operated refrigerators are of the compression type. This type utilizes both a motor and compressor to liquefy the refrigerant which may be, among many others, ammonia, sulphur dioxide, methyl chloride, ethyl chloride, carbon dioxide, or butane.

The Gas Refrigerator

Recently, great progress has been made in the perfection of the absorption type which dispenses with motors and compressors. Heat from almost any source may be utilized in its operation but gas, because of its cheapness, ease of application and dependability of supply is the fuel used.

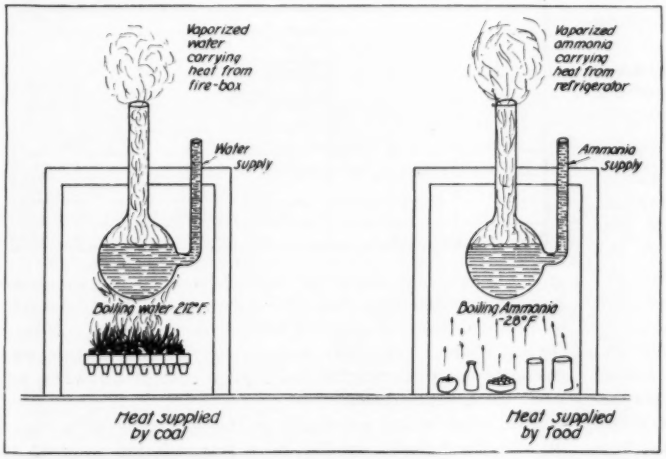


Fig. 6

SOME FUNDAMENTAL PRINCIPLES OF REFRIGERATION

WHAT is "cold"? What do we mean by mechanical refrigeration? How does heat make ice? What is the difference between gas and electric refrigerators? It is of vital importance that the salesman should know what he is talking about. This means a thorough understanding of the fundamental principles—the "whys and wherefores"—of refrigeration.

Refrigeration, in its broadest sense, is the process of cooling any substance. We know that the radiators of hot water heating systems heat the air of the room. That, however, is only half of the story. While the air is being heated, this same air is cooling or refrigerating the water in the radiators. Since the office of a radiator is to heat the air in the room the process involved is generally called a heating process. The cooling coil—better known as the evaporator—of the mechanical refrigerator cools the contents of the refrigerator, but, at the same time, the contents of the refrigerator actually heats the liquid in this coil or evaporator. Since the object of the evaporator is to cool the contents of the refrigerator, the process is known as a refrigeration process.

From this it is apparent that refrigeration may be considered the "alter ego" of heating. Refrigeration is not a science to be placed upon a detached pedestal but merely a tiny branch of that master physical science,—thermodynamics. The physical laws of refrigeration are the laws that govern heating.

"Cold" is merely a relative term. Water at 150 degrees F. is colder than water of 200 degrees F., yet, the 150 degree water is hot compared with water drawn from the cold water faucet at the kitchen sink. No matter how cold a substance can be made by mortal man, it still contains heat. The more heat that is extracted from any substance the colder it will become and, in order to make the food in an ice-box cold, it is necessary to remove some of the heat,—not to add "cold" to it. The absorption and rejection of heat is controlled by the laws of Mother Nature's most fascinating and beautiful theory,—the molecular theory of heat. This is a story in itself and will be discussed in a future article of this series.

Analysis of Refrigeration Principles

Refrigeration—the process of extracting heat from a substance—may be accomplished by various methods, the most important being (a) by the use of freezing mixtures; (b) by the melting of solids; (c) by surface evaporation. These methods are listed in just the reverse of their commercial importance.

It will no doubt surprise many to learn that amazingly low temperatures may be obtained by simple mixtures of common chemicals. These freezing mixtures are known to scientists as cryogens,—solutions producing a temperature drop by endothermic reactions. An endothermic reaction is a physico-chemical reaction that continuously absorbs heat energy as it progresses.

It is generally known that melting ice maintains a constant temperature of 32 degrees F. The rate of melting will vary with the rate of heat supplied or absorbed but the temperature remains constant. This, however, is not true of many mixtures of salt and ice and of acids and ice. In these cases the rate of melting increases faster than the absorption of heat energy from surrounding matter and the result is a solution having temperatures much lower than that of ice. This is in accordance with the physical law known as the Le Chatelier principle.

This principle, as G. P. Serviss briefly states it is: "any external action upon a physical system produces a change of such a character that the resistance which the system offers to the external action is increased." When salt is added to a mixture of water and ice, it begins to dissolve and thus introduces an increasing number of salt molecules into the system. As the concentration of salt molecules grows, the mixture opposes this concentration by increasing the amount of solvent water through melting of the ice. But the process of melting, or liquidation, always absorbs heat, and a part of the heat in this case is drawn from the mixture of salt and ice, whose tempera-

(Continued on Page 61)

Oil Economy in Moderate Temperatures

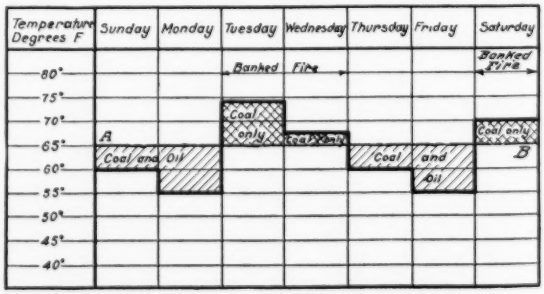
EVERYONE knows of the considerable number of days in the spring and fall of each year when heat is not absolutely necessary but when the coal fire is not allowed to go out. With an oil burner, this carrying over during the warm weather is unnecessary and considerable economy is effected by shutting off the burner the minute the outside temperature rises to a point where heat is no longer required.

This situation is illustrated graphically in Fig. 1 where a typical week is shown on the chart with a temperature scale at the left hand side. The average temperature for each day is as follows:

Sunday .....60 degrees F.
Monday .....55 degrees F.
Tuesday .....74 degrees F.
Wednesday ....67 degrees F.
Thursday .....60 degrees F.
Friday .....55 degrees F.
Saturday .....70 degrees F.

These average temperatures are indicated on the chart by the heavy up and down line while the line A-B carried directly across the chart is the dividing line between temperatures that require artificial heat and those that do not. When the heavy up and down line is below the line A-B, artificial heat must be used but when the heavy line rises above A-B, artificial heat may be dispensed with.

It will be noted that on Sunday and Monday, coal was used in the coal heated house and oil in the oil heated house to the extent shown by the cross hatched area because heat on these two days is required. Tuesday and Wednesday, however, were both warm days and no heat was necessary in either house. Consequently the oil fire in the oil heated house would be shut off and no oil fuel consumption would take place. With the coal fire in the coal heated house, it would be necessary to bank the fire, perhaps turning on the draughts once or twice just to keep the fire from going out. The double cross-hatched area above the line A-B, on Tuesday and Wednesday indicates coal consumption where no oil would be used but does not indicate the proportional coal consumption as



only enough coal would be burned to keep the fire from going out. Just what this fuel consumption would amount to is problematical and, of course, is not large. Nevertheless it does represent a loss over oil and in this way partially compensates for the higher cost of oil when figured on a B.t.u. basis.

Still other gains are made in the efficiency with which oil can be burned, in the heat transmission secured in the boiler, the elimination of ash removal, both of which will be discussed in other articles.

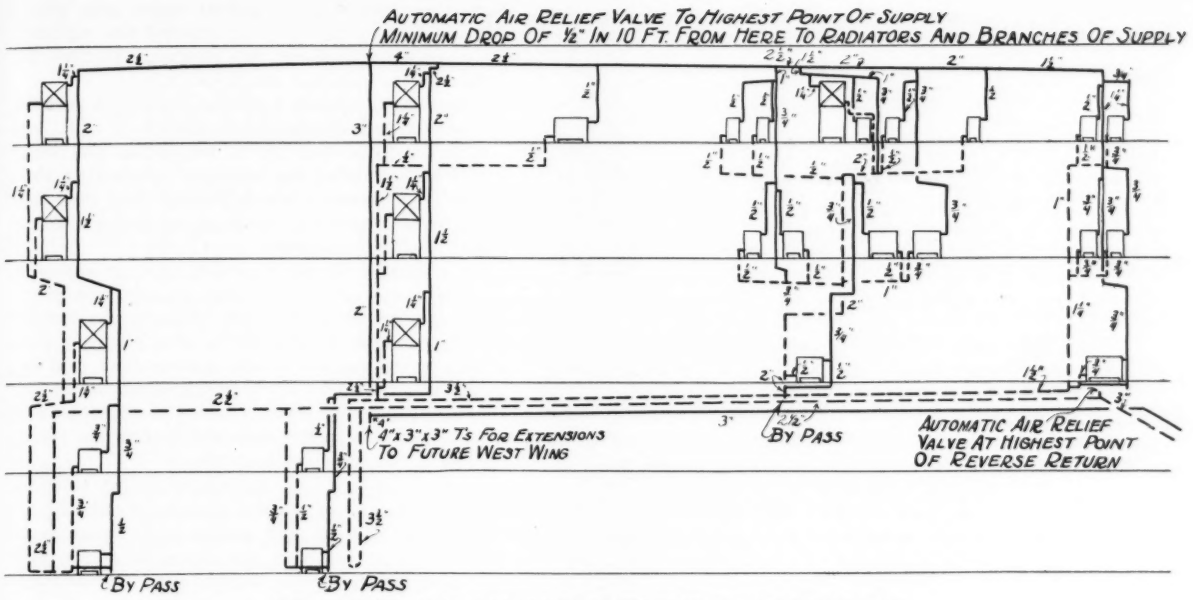

AUTOMATIC AIR RELIEF VALVE TO HIGHEST POINT OF SUPPLY
MINIMUM DROP OF ½" IN 10 FT. FROM HERE TO RADIATORS AND BRANCHES OF SUPPLY
4"x3"x3" Ts FOR EXTENSIONS TO FUTURE WEST WING
BY PASS
AUTOMATIC AIR RELIEF VALVE AT HIGHEST POINT OF REVERSE RETURN
BY PASS
BY PASS

Fig. 1.—Cross section of building, showing hot water heating system

Will This System Work?

THE ACCOMPANYING plans show a forced circulating heating layout in which the water is supplied from a main central heating plant. Two 250-horsepower boilers at present are to supply steam to three hot water heaters. Two pumps, the suction end connected to the return flow mains, pump the water through the heaters and then out through a twelve-inch supply main.

The tops of heaters are at least 35 feet above the sub-basement radiators on this job. The supply and return mains are run in 8 ft. by 7 ft. cement conduits, the top of these conduits being two feet below the first floor level of the present building. The expansion tank is located on top of the boiler room building which is as high as the present building.

Please criticize the job as to its ability to heat if installed as shown.

REPLY BY E. A. MAY

IN making any reply to correspondent, let it be fully understood that any remarks must be of a more or less general nature, inasmuch as, lacking specifications, it is only possible to make personal assumptions based on the few facts given in letter accompanying plans.

We must assume, therefore, that the radiation is ample for the requirements and that general conditions of the problem have been compiled with.

Point No. 1

The first point of interest noted is that we have an overhead system with forced water circulation, which is rather unusual and not generally preferred, one reason against it being the uncertainty of its satisfactory operation. (It may be that this difficulty does not exist in location of installation.)

Point No. 2

The next point of interest is the location of the control orifice-disc, which is apparently to be located on the supply line, while the circulation pump is on the return line, which may have a tendency to draw water from the building faster than it can be supplied, which does not tend to good balance.

It would seem more desirable to locate the disc on the return line, leaving the supply end free, thus keeping the system full at all times and free from air accumulation.

Point No. 3

A third point of interest is the assembling of the heating units in groups or series without any balancing control other than a variation in pipe sizes. It is entirely possible that close enough balance will be obtained to meet the conditions required, but it would seem more desirable to have a valve or disc at the return connection of each radiator so that accurate balance may be attained, and, once adjusted, there would of course be no need of further attention.

So far as circulation is concerned, it may be said that if pump capacity is sufficient there will be no question.

As to the amount of radiation to be installed and the basis of its selection, we can only assume that the temperature loss from main source of supply has been considered and a proper mean circulation temperature of the water in the building has been selected in determining the heat loss per square foot of equiva-

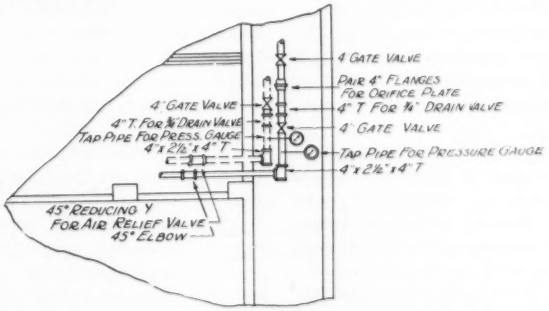

4 GATE VALVE
PAIR 4" FLANGES FOR ORIFICE PLATE
4" T FOR ¾" DRAIN VALVE
4" GATE VALVE
TAP PIPE FOR PRESSURE GAUGE
4"x2½"x4" T
4" GATE VALVE
4"T FOR ¾ DRAIN VALVE
TAP PIPE FOR PRESS. GAUGE
4"x2½"x4" T
45° REDUCING Y FOR AIR RELIEF VALVE
45° ELBOW

Fig. 2.—House control fittings

lent direct radiation. It would be of interest to know the reasons leading to the selection of the overhead system and also why the supply line was selected for the location of the control disc.

The Inquirer Explains

In answering the three points of interest mentioned above, I shall try to give the reasons.

First: An overhead system was preferred as it does eliminate the use of air valves. (2) Because of the fact that there are two floors of radiators below the boiler room level. We figured to use a reverse return in the basement as shown on the drawing, as this will give all the water the same travel and will make a better balanced system.

Second: The orifice-disc located on the supply line? I can't see as it makes much difference in regards to the disc, whether it is placed on the supply or return lines, provided we keep the orifice in an eccentric position to eliminate the air. Furthermore, the greatest pressure will be at the boiler room, and the buildings at the end of the mains will have the least pressure. Therefore, we will place the orifice on the supply mains to the buildings for a better balanced system, using a larger or smaller orifice as required, due to how near the buildings are to the boiler room.

Third: We have provided for a lock shield valve on the supply end to each radiator. We figured a differential of 30 degrees F. between flow and return mains. An average temperature of 170 degrees F was used in figuring the radiation.

Right of Buyer of Heating Plant to Reject for Delay in Delivery

By Leslie Childs

WHERE heating equipment is sold for future delivery, the question of the right of the buyer to reject for delay in delivery, may become one of great importance. But, since each case of this kind must necessarily be decided in the light of its facts, the subject cannot be covered by any hard and fast rule.

However, generally speaking, if a contract of sale makes the time of delivery of the essence of the contract, a delay will justify rejection. On the other hand, if the time of delivery is not stressed in the contract of sale, unavoidable or inconsequential delay, which does not result in damage to the buyer, will not constitute grounds for rejection. This rule is illustrated in——Iron Works v. Ferer, 282 S. W. 470, in a striking and interesting manner based upon the following facts.

The plaintiff executed a contract whereby it undertook to furnish the defendants a steam boiler and equipment for use in the latters' place of business in St. Louis, Mo. The contract of sale was in writing, dated September 13, and contained the following provisions in respect to the time of delivery:

"**Time of delivery**—Time of delivery to date from the receipt of full details of order and contingent upon delay caused by fire, strike, accident, late mill deliveries, or other hindrance beyond our control. * * * Shipment: Within ten weeks."

Immediately upon acceptance of the contract at its main office, plaintiff ordered the plates out of which the boiler was to be constructed. There was an unexpected delay of ten days in receiving the plates, owing to some difficulty at the mill from which ordered, but immediately upon their receipt plaintiff began work on the contract.

About the middle of October, defendants wrote plaintiff asking when they might expect delivery. In reply to this, plaintiff stated that delivery would be made on December 8th. Defendants made no comment upon this reply, neither did they take any steps to rescind the contract, though the promised delivery date overran the time for delivery fixed in the contract about two weeks.

Plaintiff manufactured the boiler as quickly as possible after receiving the plates, and made delivery f. o. b. cars to defendants on November 30, or ten weeks and eight days after it had accepted the contract. Following this, on December 6, defendants wired plaintiff that they had received the invoice covering the shipment but would not accept same. Defendants added:

"Boiler not shipped within specified time of contract. Can buy same equipment for considerably less money."

Following this rejection, plaintiff brought the instant action for the amount claimed to be due, claiming that time was not of the essence of the contract and that defendants had no ground for their rejection of the boiler. Defendants stood upon the strict letter of the contract and insisted that since the boiler was not in fact delivered, accordingly they had the right to reject.

Upon the trial of the case, defendants failed to show that they had suffered any special damages by the delay, and on the other hand plaintiff did show an unavoidable delay of ten days in receiving the plates from the mill which, if taken into account, would make the delivery within the letter of the contract. The trial thereupon resulted in a judgment in favor of plaintiff. The defendants appealed, and the appellate court in passing upon the question raised said:

"The whole contention goes to the one question as to whether the court properly held that time was not of the essence of contract, and that delivery was made within a reasonable time. The contract was not to become binding until * * * September 13, * * *. While * * * it was stated that shipment was to be made 'within ten weeks,' we must consider the other provisions of the contract which provided for certain delays.

"Plaintiff began to order the steel plates from the mills even before the contract was actually executed. There was more than a ten-day delay in the delivery of these plates by the mills, * * * and as soon as the plates were received the work was begun and proceeded as rapidly as possible until the boiler was completed. * * *

"If we compute the time of ten weeks from September 13th, it would be November 22nd, when the ten weeks were up; then in so far as September 13th is concerned, the delivery was eight days beyond the ten-week period. If allowance is made for the ten-day's unavoidable delay because of mill deliveries, then the delivery was made two days before the ten weeks had expired. * * *"

Following the above review of the record, the court quoted the general rule in situations of this kind as follows:

"Where a contract has been mutually and fairly entered into by both parties and time is not expressly made the essence of the contract and neither party has expressly repudiated it, one party cannot evade its obligations on the ground of delay of the other, unless he shows damage to himself by such delay, or such an unreasonable or intentional and willful delay as will evince an intention on the part of the delaying party to treat the contract as at an end."

In accordance with the above rule, the court in stating its conclusion on the whole case, in the light of its facts, said:

"We think the trial court correctly held that time was not of the essence of this contract, and that it was rightly decided that there was no breach of this contract by plaintiff so as to justify the defendants in * * * refusing to take the boiler when delivered, * * *. Judgment affirmed."

The Plumber *as a* Public Health Worker

By W. C. MILLAR

Provincial Sanitary Inspector, Ontario

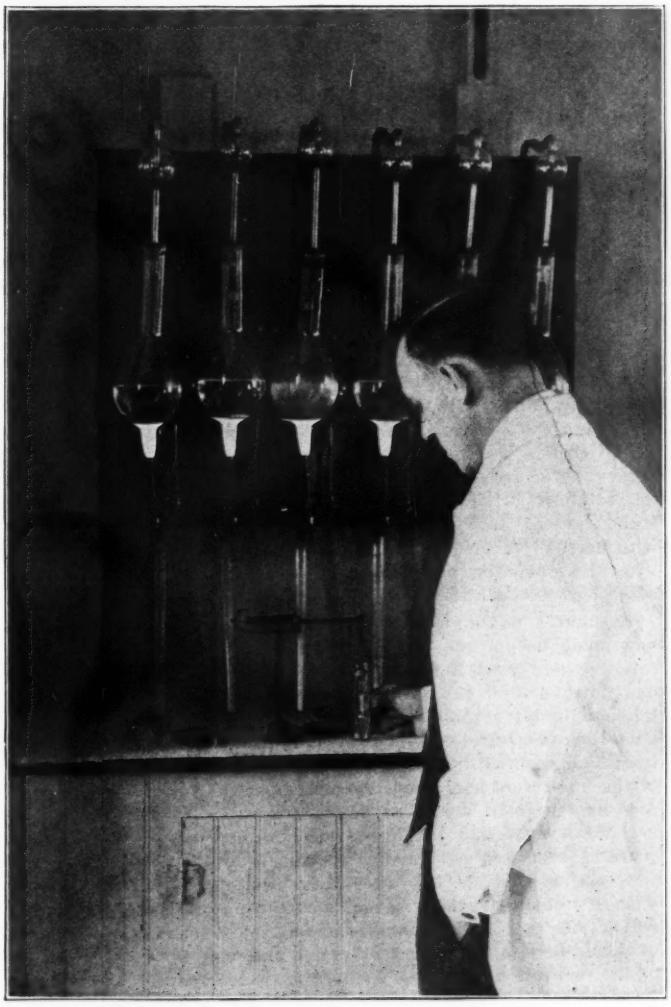
THERE is being launched, a general health campaign in which plumbing and heating papers, the National Association of Master Plumbers, American Society of Heating and Ventilating Engineers, American Society of Sanitary Engineering, Heating and Piping Contractors National Association, National Life Insurance Underwriters, insurance departments of chambers of commerce, American Public Health Association and others are participants. They are helping people to live longer and more healthfully.

The master plumber, the sanitary engineer, the heating contractor and the heating and ventilating engineer should take their rightful places in these activities, as no one has more to do with the prevention of disease than those who provide pure water and pure and tempered air.

One of the first points to consider is sanitation in schools, workshops and places of amusement. The question of ventilation in all these places will be studied carefully, for the modern public health worker knows the important bearing proper ventilation has on the health of the people. Temperature, circulation and humidity of air are the underlying principles governing ventilation, and the heating engineer, in the installing of an up-to-date equipment will furnish the necessary temperature conditions, while the ventilating engineer who installs his modern ventilating systems will, if given an opportunity, do away with a large percentage of colds, flu and pneumonia that are contracted in buildings where people congregate, and which prepare a fertile bed for tuberculosis and other respiratory troubles.

Two very common and deadly diseases which are to be combated are typhoid fever and diphtheria. Both these maladies take heavy toll each year, typhoid where numbers of adults congregate and diphtheria in the schools among children up to about six years of age. Last year, in the United States of America eleven thousand died of the latter disease, while two hundred thousand more contracted it.

Were the health authorities given, in peace times, the powers that rest with the military authorities in time of war, all children would be immunized for life against diphtheria by an inoculation of toxin-anti-toxin, and the whole nation could be protected against typhoid by a yearly inoculation of anti-typhoid vaccine, which would keep them immune from that dread disease.



A Board of Health chemist in his laboratory

But there is not much hope of the above steps being taken, so the next best thing is to prevent the spreading of these diseases. Both are kept alive and are spread among the general public by "carriers." The old idea that these diseases were caught from the atmosphere, from sewer gas or through drinking water polluted by decaying animal or vegetable matter, has long been exploded. One might just as sensibly give any of the above three sources credit for the growth of a few stray spears of wheat or oats found growing along the roadside. Everyone knows that the above seeds would have to be deposited in the particular place where they were found growing. In the same way, one can be sure, in a case of typhoid, that seeds have been transplanted either from a person suffering from that disease or from a "carrier" of it, to the person who has been attacked by it.

One of Canada's foremost lecturers on typhoid fever reiterates, year after year, to the students whom he tutors: "Where a body of men are congregated together for a length of time, and proper care of the disposal of their waste matters is not taken, there typhoid fever is sure to break out."

It is known that two per cent of the general public are typhoid carriers—that is, two per cent harbor typhoid fever germs. Some years ago, an outbreak of typhoid

developed in one of the public institutions over which the writer had supervision. A sanitary survey of the building showed an up-to-date system of plumbing conveniences out of commission. Inquiries disclosed the fact that the water main had burst in several places and a new pipe was needed. This would cost around one thousand dollars. Tenders had been received from several plumbers, all of which were thought to be too high. In the meantime, a temporary outside privy had been erected to take the place of the W.C.'s which were not working owing to lack of water.

An analysis of the drinking water that was being delivered by water-wagon, gave proof of its purity. A further inspection of the privy showed thousands of flies feeding upon its contents; this was in July. A visit to the kitchen and dining room disclosed unscreened windows and food plentifully dotted with flies. That the open privy was the source of the outbreak I felt sure. Orders were given to have the temporary water supply hooked onto the W.C.'s immediately, windows screened, all foodstuffs covered and the filthy privy filled in with lime. From then on the epidemic ceased, with the exception of one case, which had been in the incubation stage.

Without a doubt, a typhoid fever carrier had made use of the open privy; flies had followed and used it as a dining room and had finished their repast in the institution's kitchen, in all probability wiping their feet upon the cake, bread or cold meat upon which they had alighted. An unsuspecting inmate of the institution had eaten the contaminated food and in about fifteen days was sick with typhoid fever. Had the up-to-date sanitary fixtures been kept strictly in working order, the cost of treating the nine cases that developed the disease would have been saved, also the one human life which was sacrificed to false economy. The installation of the up-to-date plumbing system had protected the health of the institution's inmates during the twelve years it had been running. Three weeks without those modern sanitary conveniences and the lives of all were imperiled.

Another epidemic, this time water-borne, occurred in a town in this district. The water supply was taken from a river into which sewers poured at any point where any handyman thought fit to run one. Over a hundred lives were lost and the town's prosperity and growth were set back ten years, owing to this epidemic. A new water supply has since been installed and all plumbing installations must now be made by qualified, licensed plumbers whose work is inspected by the city plumbing inspector.

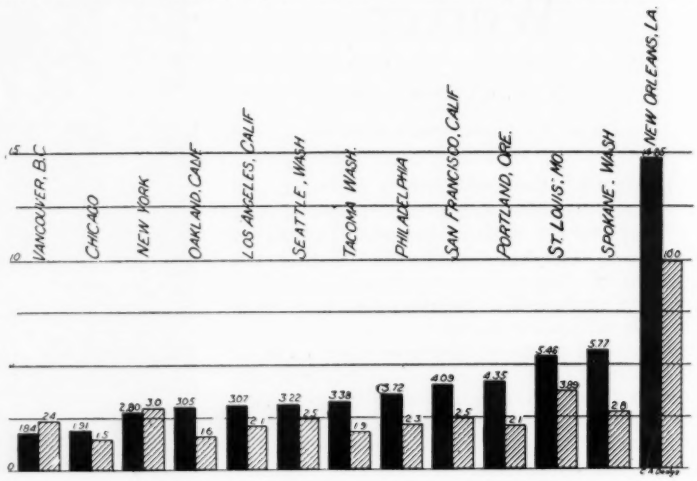
Diphtheria is a disease common amongst children from two to six years of age. Later they develop a certain degree of immunity to the disease. As in the case of typhoid fever, diphtheria is spread by carriers, three per cent of the children being carriers of diphtheria germs.

Where an outbreak of diphtheria occurs in Ontario all children in the diseased area who have not contracted the disease have their throats and noses swabbed with a tiny cotton batten swab. Each swab is numbered and separately tested in the government laboratory, and frequently swarms of diphtheria germs can be seen on these test samples when placed on white discs and examined through the microscope. The germs resemble little club-headed tadpoles and are distributed by means of the common towel and drinking cup to the unsuspecting child using them.

In the up-to-date schools of Ontario the common drinking cup has long since been anathema, but unfortunately it is still to be found in some of the rural districts of both Canada and the United States.

The supplying of individual paper towels, washbasins with hot and cold running water and bubble drinking fountains are a necessity, if the diphtheria death-rate is to be reduced amongst the children of the United States and Canada.

A home, school, public building or town that does not have the sanitary conveniences for the preservation of cleanliness among its occupants and the safe disposal of their body wastes, can be likened to an army which, lacking weapons with which to defend itself, falls an easy prey to the first powerful enemy that attacks it.



DEATHS DUE TO TYPHOID FEVER IN VARIOUS CITIES PER 100,000 OF POPULATION

BLACK AREA TEN YEAR AVERAGE SHADED AREA RECORD OF 1925

From my experience, gained in the supervision of territory covering one hundred thousand square miles of country, I can safely say, without fear of contradiction, that a town, summer resort or construction camp which has availed itself of the advantages of modern sanitary science, has seventy-five per cent better chance of escaping these periodical epidemics.

SANITARY PROGRESS IN AUSTIN, TEXAS

The city of Austin, Texas, is proud of its progress in sanitation. It has one of the most modern filtration plants in the state. It gets its water supply from the Colorado River which is carried through the filtration plant and furnished to the customer practically 100 per cent pure. It has a fine sewage disposal plant and recently $50,000 in bonds was voted for the purpose of extending a sanitary sewer line to all parts of the city with a view to forcing sanitary sewer connections to all Austin residences. Texas has a state law affixing a very severe penalty for any pollution of streams of the state.

The city of Austin has a municipal swimming pool known as "Barton Springs." This pool is fed from ice cold springs coming out of the rock and gravel formation. "Deep Eddy," a privately owned swimming pool, is fed by well water and is one of the best artificial pools in the state. In addition to the $50,000 bond issue recently voted for the sanitary sewers, the people of Austin have also voted three and three-quarter million dollars for an abbatoir, airports, libraries, fire stations, central markets, streets and bridges.

The Schoolmaster on the Placing of Fixtures

THREE solutions of the problem presented on pages 39 and 41 of the January 21st issue have been received and we are glad to discuss them. This work is shown in Figs. 1 to 5.

You will recall that in this problem a set of plans was submitted, showing no fixture or stack locations. The first step was to make these locations, then to show the cellar piping. Having done this, the next step was to plan some method which would provide for a bathroom on the first floor, and two private toilet rooms on the second floor. The final step was to make an elevation showing the entire plumbing system of the house.

Figs. 1 and 2.—Joseph Quirk, So. Boston, Mass.—A note accompanying the drawings states that it is a first attempt, which leads us to remark that each member

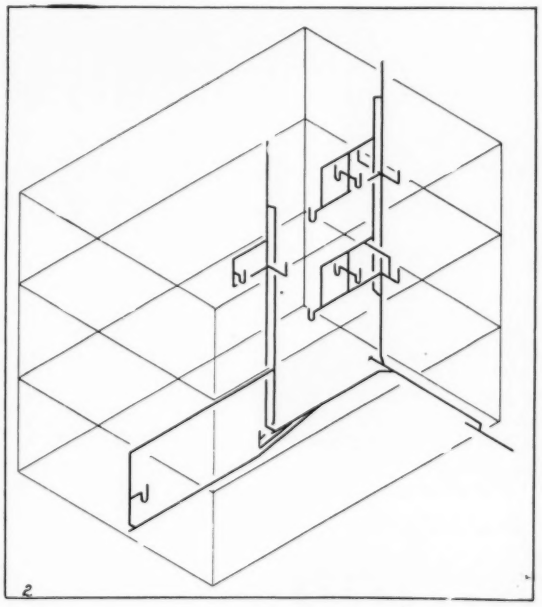


Fig. 2

of the Class has had the experience of a first attempt, and it is only by making this initial attempt that progress can come.

The original statement of the problem makes it allowable to change the location of the cellar water closet. As here changed however (Fig 1), there is no window opening from the outside into the compartment, this being a requirement that most plumbing codes make. Probably the reason for this location is that the same stack might serve the second floor toilet room. We would advise a location for the cellar water closet that could be provided with a window. The same thing may be said of the two extra toilet rooms on the second floor. It is not always that this rule is followed, notably in the case of large hotels, but in the latter case there is generally some efficient system of artificial ventilation provided. On general principles it is always best to have plumbing fixtures in well-lighted and ventilated locations.

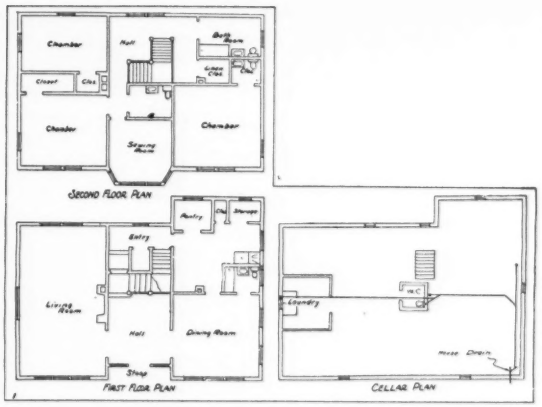


Fig. 1

We would advise cutting a window for one of the second-floor toilet rooms, and an outside location for the other one. The method of putting in the first floor bathroom is legitimate, although somewhat expensive, and moreover it cuts down the size of the kitchen, which the lady of the house may or may not be willing to stand for. About the only other alternative would be to make use of the storage room and closet, and this again would most likely depend upon the above mentioned lady's attitude.

This is mighty good practice, and we believe much is to be gained by the solving and discussion of such a problem.

The isometric elevation is excellent, and we offer congratulations on the initial attempt.

The cellar work in the elevation is not in entire agreement with the piping as shown in the cellar plan. This criticism refers especially to the connection of the water closet and laundry tubs into the house drain.

It would make a better job to connect the vent stack back into the soil stack instead of into the closet bend, and then run a separate vent from the bend.

Figs. 3 and 4.—Edward Muhlenpoh, Lockland, Ohio.—This layout is quite different from that shown in Figs. 1 and 2, and much that was said concerning the latter applies here, especially about providing light and natural ventilation to toilet rooms. It will be observed that both extra toilet rooms on the second floor are inside rooms.

Nothing in the statement of the problem showed that these two toilet rooms were to open out of the hall, but in this solution it will be observed that they have been located so that they each have this advantage. We imagine

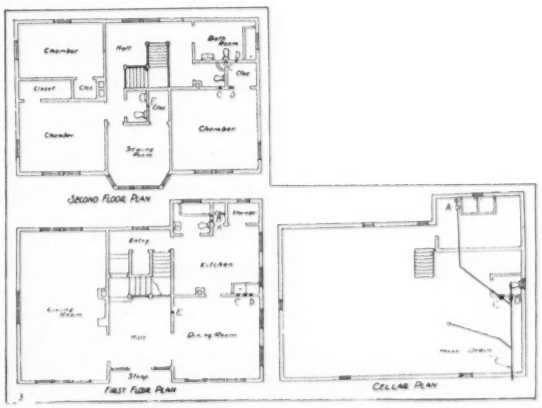


Fig. 3

The Marlton

The Marlton F 315 GX is a new "Standard" Lavatory, made in one-piece of Genuine Vitreous China. It is the aristocrat of space-saving lavatories, is original and beautiful in design. Overall size is 14 by 26 inches. The Mastercraft fittings shown, obtainable in Chromard Finish or gold-plate, are designed especially for this lavatory.

"Standard"
PLUMBING FIXTURES

THE new note of distinction in plumbing fixtures, originated and developed by "Standard", now gives your customers full opportunity to express their individuality in bathroom decoration.

Styled Lavatories, the beauty of which is exemplified in the Marlton, are available in a wide variety of designs and sizes. Each of these fixtures represents for you an opportunity to build a satisfied clientele, greater prestige and a more substantial profit.

All "Standard" Plumbing Fixtures — enameled or vitreous china — bear the "Standard" trade-mark. They are procurable in white or a number of beautiful colors.

Standard Sanitary Mfg. Co.
PITTSBURGH

"Standard"
PLUMBING FIXTURES

this feature influenced the selection that has been made, and we think that this showed good judgment, for any other location would confine the use of the toilet room to the occupant of one of the rooms.

The first floor bathroom has been located by giving up the pantry. There should be no objection to this, if the lady of the house is willing, but from our own knowledge of housewives, we would naturally expect strenuous opposition, and feel that the use of the storage closet would be a safer bet.

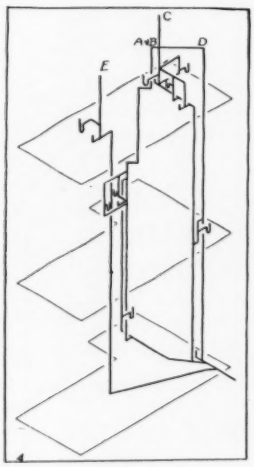


Fig. 4

Doubtless the change in location of the laundry and the cellar water closet is made to bring these fixtures to a point where they will not require special pipes to accommodate them. This is good judgment. The isometric elevation is well worked out, and shows a clear understanding of the subject.

Fig. 5.—Wm. DeRonde, Paterson, N. J.—This isometric is submitted without floor plans that would guide us in criticising the layout. As far as we can see, the drawing is correctly made.

Apparently the cellar water closet has been shifted over towards the corner of the cellar where it can be handled by the same stack that serves the first floor water closet. Just where the latter has been located we do not quite know, but evidently the storage room or pantry have been put to use for the bathroom.

One of the toilet rooms has been located on the second floor over the laundry tubs, so that the same stack serves both fixtures.

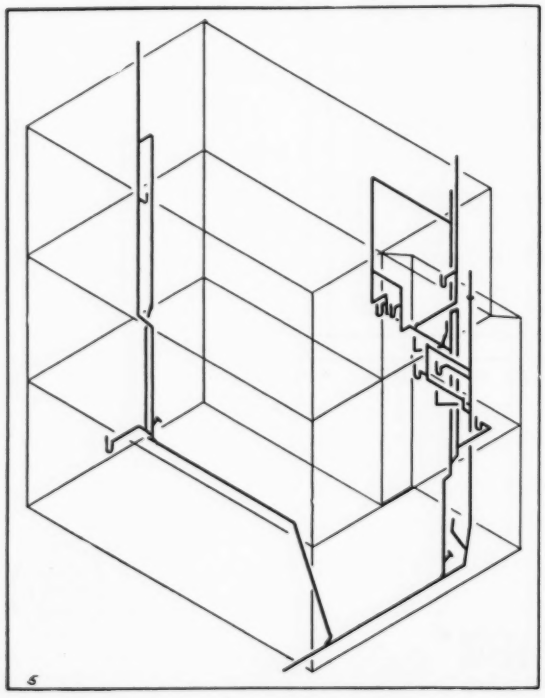


Fig. 5

Good judgment has evidently been used in finding accommodations for the extra plumbing fixtures.

Two more solutions for the problem shown on pages 34 and 37 of the issue of November 12, 1927, have been received. It is a long time back to November, but principles haven't changed in that space of time, and we are glad to give space to the discussion of these drawings.

In this problem, a set of floor plans was given, with instructions to locate the fixtures in the basement, a sink each in the kitchen and pantry, and bathrooms on the second and third floors. This would put the plans in shape for the building of the house, after which more

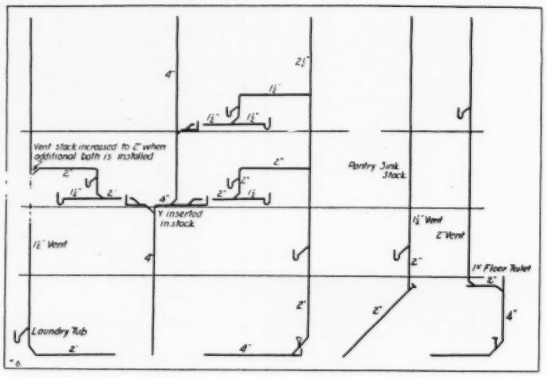


Fig. 6

plumbing being desired, the problem was to provide for an additional water closet on the first, a second bathroom on the second floor, and a lavatory in the front chamber on the third floor. The final requirement was to make an elevation of the plumbing system.

Fig. 6.—Arthur Wiborg, McPherson, Kans.—This is an excellent drawing, showing each separate stack, but in the absence of floor plans, we are entirely unable to understand what provision was made for the additional plumbing. The same situation occurred in relation to Fig. 5, but that was an isometric drawing, from which we were

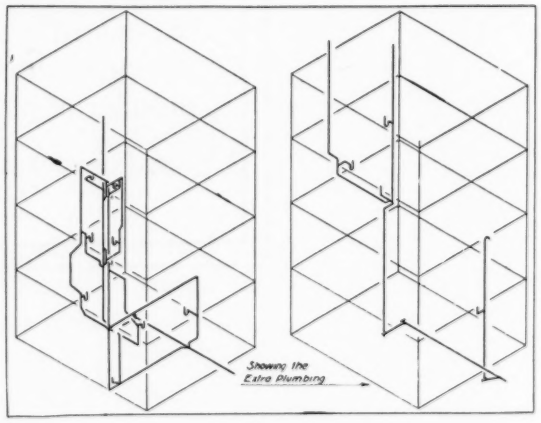


Fig. 7

able to draw conclusions that cannot be drawn from Fig. 6.

It seems as if some provision could be made so that it would not be necessary to run a separate stack for the pantry sink.

We note what seems to be the connection of fixture wastes into lead bends. This is not generally considered

(Continued on Page 54)

Hot *or* Cold?

To sell a customer a shower installation without a mixometer is like selling a suit of clothes minus the vest.

Anyone who wants a shower will want a Speakman mixometer once you tell him its advantages. How a turn of the handle gives him just the temperature he wants. How it saves time and water. How it removes the danger of his being almost scalded by a sudden deluge of hot water.

Pick up a Speakman mixometer and examine it. Notice how very smoothly it works —how every part has been machined to perfect accuracy. Notice the unusual beauty of its finish.

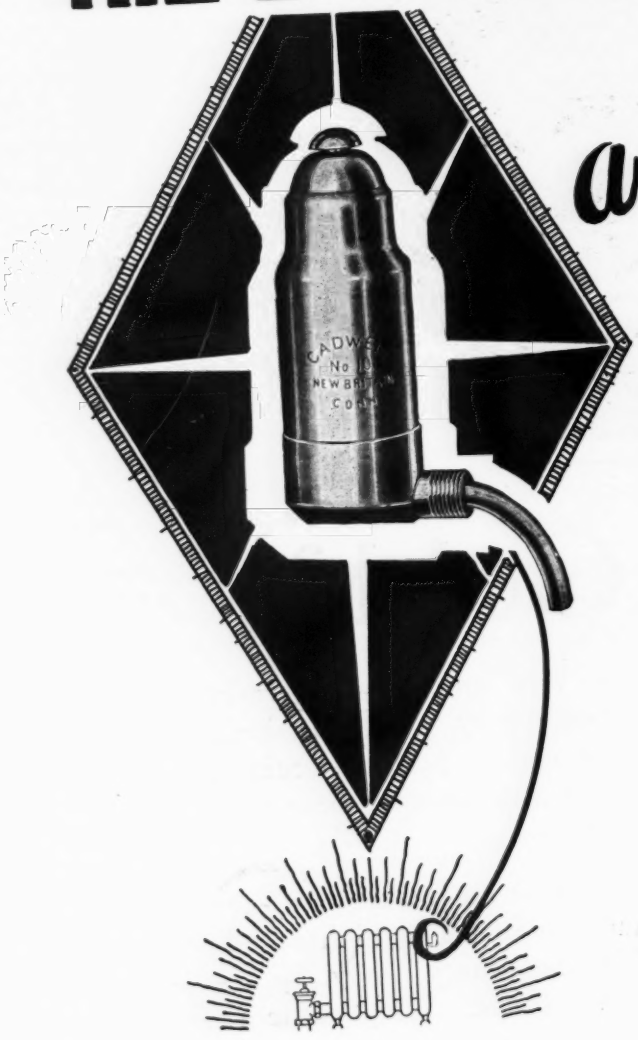
Speakman mixometers are made to the same high standards that mark every Speakman fixture. They come in china, metal or silvery tarnish-proof Speakman chromium plate. *Don't fail to include one in your next shower job.*

SPEAKMAN COMPANY
Wilmington, Del.

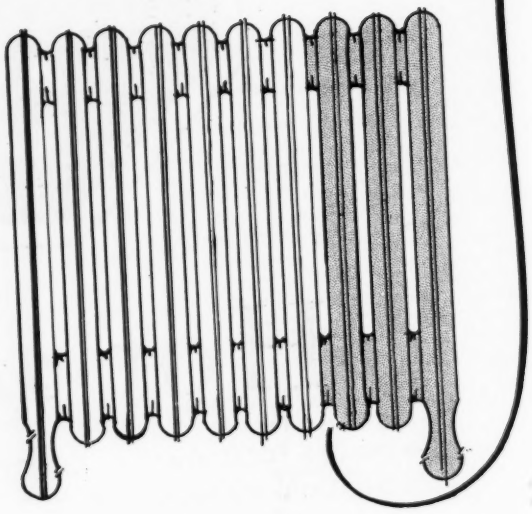
SPEAKMAN
SHOWERS & FIXTURES

THE LAST THREE SECTIONS

Are the hardest to heat



The Cadwell No. 10 is fully guaranteed for five years.



Getting heat into the last three sections of a radiator has always been a stumbling block. With the Cadwell No. 10 Non-adjustable Air Valve this is a simple matter. The operation of the Cadwell No. 10 is quick and efficient. The instant steam comes in contact with the thermostatic float, the diaphragm expands and lifts the float and valve pin into seat, closing valve.

These valves are also made with ⅛" or ¼" bottom outlets for quick vents.

Ask your jobber.

The BEATON & CADWELL MFG. CO.

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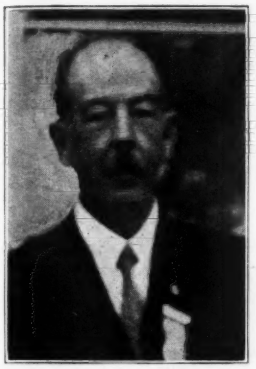
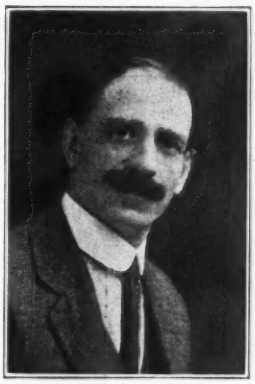


A. R. McGonegal

The Wet Vent

Sanitary Engineers of two nations discuss it



A. W. Barnes

CAN the wet vent be universally adopted without danger? Is the use of the wet vent in accord with the principles of first class sanitary engineering? If adopted generally, will it result in installations that are unsatisfactory and insanitary and a possible source of danger to the health of the public?

These questions were commented upon in an article in the December 17, 1927, issue of "Domestic Engineering." The article, entitled "An English View of the Wet Vent," was written by A. W. Barnes of London, England.

It is well known that master plumbers and sanitary engineers of the British Isles have a different point of view regarding many phases of plumbing practice from those in the United States. It is generally conceded that it is not safe to ignore the other fellow's point of view because he may know something we do not know, and it is for this reason that we present to the readers of "Domestic Engineering" the points of view of a man well known in the plumbing industry in the British Isles and a discussion of those points of view by a man who stands high in the esteem of those who know him, and particularly those prominent in the plumbing industry in the United States—A. R. McGonegal, chief plumbing inspector of Washington, D. C. Mr. McGonegal's discussion of the article in the December 17, 1927, issue is given below.

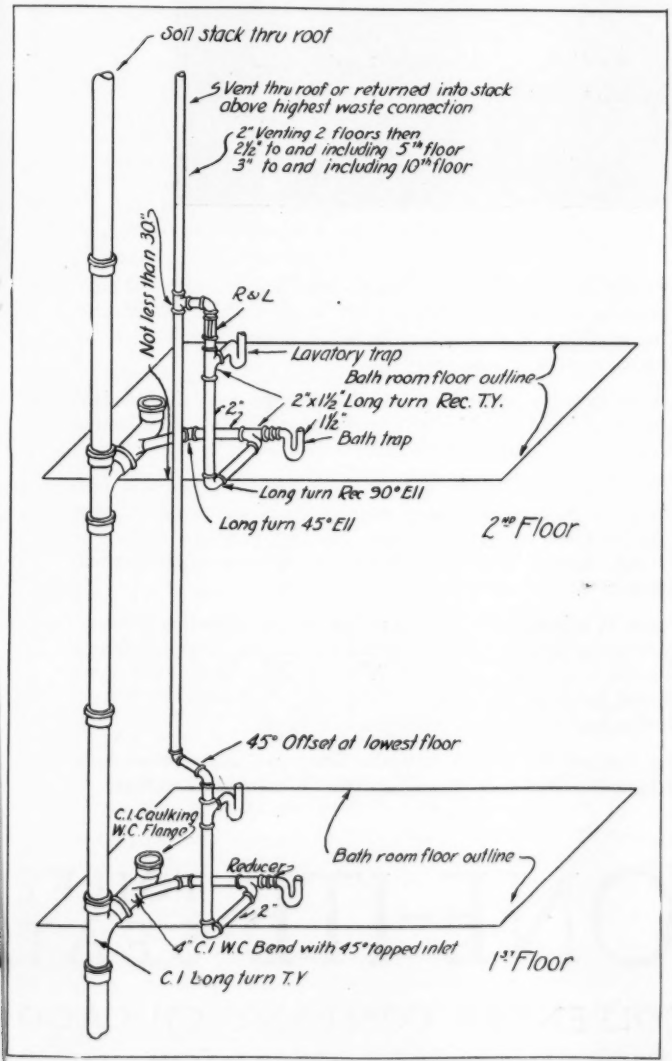

Soil stack thru roof
5 Vent thru roof or returned into stack above highest waste connection
2" Venting 2 floors then 2½" to and including 5th floor 3" to and including 10th floor
Not less than 30"
R & L
Lavatory trap
Bath room floor outline
2"x1½" Long turn Rec. T.Y.
2"
1½"
Bath trap
Long turn Rec 90° Ell
Long turn 45° Ell
2nd Floor
45° Offset at lowest floor
C.I. Caulking W.C. Flange
Bath room floor outline
Reducer
2"
4" C.I. W.C. Bend with 45° tapped inlet
C.I. Long turn T.Y.
1st Floor

Fig. 1

MR. McGONEGAL'S LETTER TO A. W. BARNES

I READ with much interest your article in the December 17, 1927, issue of "Domestic Engineering" entitled "An English View of the Wet Vent."

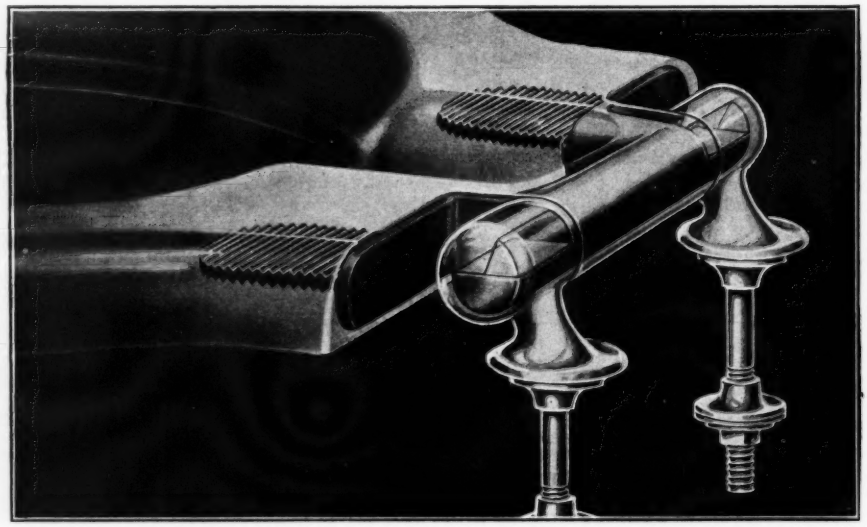
I cannot reconcile your argument against the "wet vent" as practiced in the larger cities of America with your undeniable approval of the "circuit vent" principle, unless the term "wet vent" conveys a meaning to you and the British plumber at variance with our conception of the sort of construction so termed in our larger cities.

It is admitted that one purpose of the installation is to save pipe, fittings, and labor, but this is secondary. Its primary purpose is to save space. It was first used in Washington in hotels and apartments, where every inch saved has a very definite rental value, and it was only adopted as a practice after the most exhaustive tests over a considerable period of time under both service and artificial conditions. Its record was perfect; not one failure, though some of the imposed conditions artificially applied were beyond the usual breaking point of an entire system.

What we know as the "wet vent system" in this country has been adopted and is in daily use in some thirty cities. In general, the original meaning is adhered to but in some cities they have gotten away from strict construction and I am afraid installations are permitted under that name which do not follow the principles laid down originally.

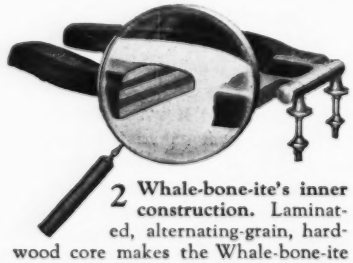
We believe that, properly installed, the wet vented bathroom is the equal of an individually back vented bathroom, so far as protection of the trap seal against siphonage, momentum or back pressure is concerned; that this single vent for two or three fixtures saves money, saves space

Your Customer, *at the same price, can have* Whale-Bone-ite



Why miss Whale-bone-ite's important features?

1 The new Whale-bone-ite Hinge. Makes both seat and hinge one unbreakable solidified unit, impervious to moisture, absolutely non-corrosive. No other closet seat offers you this hinge.



2 Whale-bone-ite's inner construction. Laminated, alternating-grain, hardwood core makes the Whale-bone-ite Seat proof against splitting, warping, or cracking. Every Whale-bone-ite Seat is guaranteed for life of the building.

A WHALE-BONE-ITE SEAT costs no more than the cheapest composition closet seat. This is a fact every plumbing contractor should know. Don't think a substitute is just as good. It isn't. Only Whale-bone-ite is "like Whale-bone-ite."

Architects have for years recognized Whale-bone-ite as the standard seat for all fine buildings. No other toilet seat has proved in actual use to have this seat's amazing durability.

The Whale-bone-ite Seat is one piece . . . molded when soft into shape around a core of alternating-grain layers of hardwood. Thus it has no cracks or seams to harbor germs. No thin veneered surface to wear through. Easy to clean, non-inflammable, its beautiful surface will last a lifetime.

The new Whale-bone-ite hinge is molded in one operation as an integral part of the seat. Reinforced by a metal, die-cast, one-piece insert, it is covered with highly-polished Whale-bone-ite having the same strength and finish as the surface of the seat. Any model of Whale-bone-ite Seat may be obtained with this new hinge.

When you sell the Whale-bone-ite Seat, you sell service: long, dependable wear. Don't accept any less than Whale-bone-ite offers.

WHALE-BONE-ITE TOILET SEAT

THE BRUNSWICK-BALKE-COLLENDER COMPANY · CHICAGO

Albany	Boston	Chicago	Dallas	Detroit	Kansas City	Minneapolis	Philadelphia	San Francisco	Tampa	Ottawa
Atlanta	Buffalo	Cincinnati	Denver	Harrisburg	Los Angeles	New Orleans	Pittsburgh	Seattle	Washington	Toronto
Birmingham	Charlotte	Cleveland	Des Moines	Houston	El Paso	New York	Richmond	St. Louis	Montreal	Havana

and tends to standardization; that it ventilates as much of the drainage system as would be the case were the fixtures individually vented, and leaves no more dead ends consisting of unvented branch wastes; and, that in any event, it is quite usual for all the vents in a three fixture bathroom to foul up except the end one on the line, thus making all bathrooms wet vented in time without certain advantages obtained by installing it that way in the first place.

While one might be tempted to say there would be a difference in the application of the principle because of the difference in our manner of handling soil and waste separately or combined, a study will convince that it is as applicable to your two-waste fixture bathroom as it is to our three-soil and waste fixture room, though the money or space saving would not be as great.

Our wet vent principle (which we might call "vent waste" as you suggest, except that it is already widely known under the accepted name) is predicated on seven generally accepted facts:

1.—Underfloor vents, laid horizontally or with slight grade, stop up and become worthless in time, as the connection of vent with waste, and a part of the vent run, are below the hydraulic grade of the total fixture waste.

2.—A proper vent connection to a waste which lies entirely above the hydraulic grade of the fixture waste cannot become clogged except under conditions so abnormal as to be beyond consideration, as it would put out of service any vent system ever devised.

3.—A waste pipe, at any time it is not used as such, is physically available for the carrying of air, and normally should do so in any part of a system, and if we so arrange matters that it is improbable that it will be used for both purposes at the same time, and make the proper connections, why put in two pipes to do the work where one would suffice?

4.—A private bathroom containing the normal three fixtures, closet, bath and basin, is not designed for the use of more than a single person at any one time, and the occupant is concerned with only one fixture at a time, therefore it would rarely happen that one waste would need venting at the time another was wasting.

5.—The "wet vent system" is only an adaptation of the circuit vent principle applied to pipes smaller than usual.

6.—If the end fixture on a wet vent group wastes above the high water level of other fixtures in the room, there will be no obstruction built up by stopped wastes because the fixtures would overflow first and call attention to the condition.

7.—If the end fixture wastes into a vertical waste and vent pipe below the hydraulic grade of that fixture waste, there will be no stoppage at that point, provided the fixture waste discharges downwardly through a fitting designed to prevent back splash.

I am enclosing a sketch of "wet vented" bathroom such as we install, and as a two-fixture unit it could be applied under your separate waste system by simply leaving the closet off, and it is unquestionably good construction in either case. See Fig. 1.

It is possible your article was predicated on a misconception of the application of the term; if so, I trust this sets you right; if not, I wish it were possible to get together in a joint debate.

In any event I extend to you most cordial greetings, and wish you every success both personally and professionally.

Hoping to meet you again and renew our pleasant acquaintance, I am

Very sincerely yours,

A. R. McGONEGAL,
Inspector of Plumbing, D. C.
Member, American Society
Sanitary Engineering.

MR. BARNES' REPLY TO MR. McGONEGAL

THE ARTICLE entitled "An English View of the Wet Vent," which appeared in "Domestic Engineering" on Dec. 17, 1927, set forth certain ideas which led my friend, A. R. McGonegal, inspector of plumbing, Washington, D. C., to take up the defence of the wet vent. Criticism leads to the exchange of ideas, and to the furtherance of knowledge; it also stimulates progress, consequently it is welcomed by all progressive minds.

Mr. McGonegal states that the wet vent system has been adopted by, and is doing service in, some thirty cities in the United States, and that "its primary purpose is to save space." Space that may be brought into useful service for various purposes every day, is indeed valuable because of having a rental value, but as vent pipes, wet or otherwise, are generally buried in the materials of which the walls and partitions are constructed, it is difficult to see how the saving of space argument holds good. Undoubtedly there is a saving of materials and labor, and consequently of cost, and is not this the primary reason which has led to the adoption of wet venting in certain cities and towns?

Whatever may be the chief argument in favor of the wet vent, it would appear that the chief argument against it is that it opens the door to scamped work; no one could have put this case against wet venting better than Mr. McGonegal has done in a letter he sent to me, and which bears the date of Feb. 7th. The following is the statement made at the end of the third paragraph in the letter referred to: "In some cities they have gotten away from strict construction, and I am afraid installations are permitted under that name which do not follow the principles laid down originally."

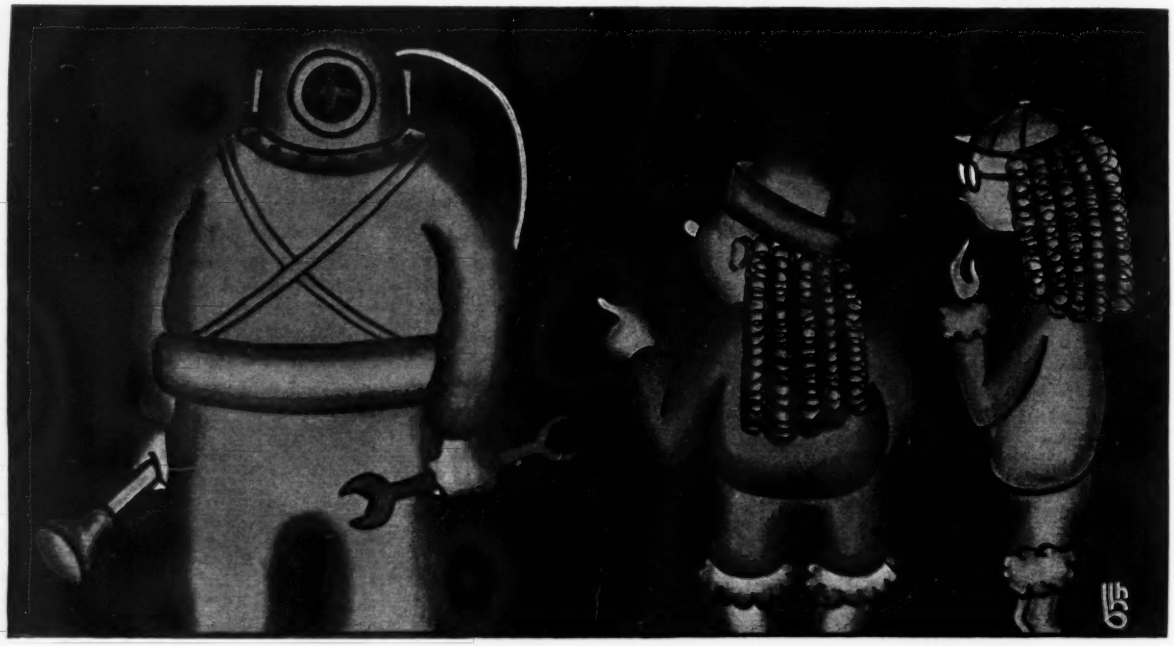
Paragraph four of the same letter begins as follows: "We believe that, properly installed, the wet-vented bathroom is the equal of an individually back-vented bathroom." Mr. McGonegal admits that the proper principles of wet-venting are not being carried out in certain cities, and where such is the case, and unsatisfactory work is installed, the health of the public may be in danger.

Who is able to state the precise limits of the principles which govern what may be termed proper and satisfactory wet venting? Experts themselves seem scarcely agreed upon the matter, consequently it would be quite an easy matter in many instances for a master plumber of good repute to exceed the proper limits of wet venting, when he had really no wish to do so.

R. M. Starbuck, Jr. has already pointed to this danger in one of his articles, having stated that we must proceed carefully in these matters. In the more important cities, control and inspection may be easy. But what of the smaller cities and other outlying places? Infectious disease knows nothing of boundaries, and an infectious disease breaking out one day in a small town in California or Florida may, owing to the rapidity of modern transport, speedily convey infection to the inhabitants of Washington or New York, or other distant cities.

Let me state clearly that in cases where cost is an important consideration, I occasionally make use of wet venting, to a limited extent, in installations in Britain, provided that no element of danger is introduced. But I hold to the view that one of the most important functions

The Plumbing Primer



"Oo! What is the man wear-ing?"

"The man is wear-ing a div-ing suit."

"Is the man a chan-nel swim-mer?"

"No, the man is a plumb-er."

"Why does he wear the div-ing suit?"

"Be-cause Miss-us Yen-sen's toi-let is act-ing up a-gain."

"Must he have a div-ing suit to fix the toi-let?"

"You said a mouth-ful, Al-ger-non."

"What will the plumb-er do to fix the lady's toi-let?"

"He will sell the lad-y a fine, new toi-let called the Improv-ed Mad-era."

"Will the lad-y be pleas-ed?"

"Yes be-cause there will be no more tid-al waves from the toi-let."

"Will the plumb-er be pleas-ed al-so?"

"Yes, be-cause he will make a dan-dy pro-fit."

MADDOCK'S *Improved*
MADERA
THOMAS MADDOCK'S SONS CO. ▪ ▪ TRENTON, N. J.

of the vent pipe is that of conveying a current of fresh air throughout the entire system, and as near as possible to the water forming the seal of the trap; with wet venting this would be impossible in many instances.

So far as blocked vent pipes are concerned, I have found, as the result of my own experience, that these exist in the imagination of the theorist rather than in actual practice. I cannot help thinking that many sanitary engineers concern themselves with what might happen according to theory, rather than with what actually does happen in practice. I have found very few branch vent pipes that were blocked, or even badly corroded.

In Britain drawn lead pipe is much used for branch soil, waste, and vent pipes, and due to its perfectly smooth interior, it does not present a surface to which waste matters easily attach themselves. Lead pipe is easily cut with a saw, and when old installations have had to be pulled out, I have had pieces, several inches long, cut out of the branch vent pipes near the point of junction with the soil or waste pipe. By cutting with a saw, it was possible to avoid disturbing any blockage or corrosion that may have existed in the pipe, but only once in my career have I met with a branch vent pipe completely blocked, and that was in a second-class restaurant, where the hot water supply was unsatisfactory, and there was much grease in the water that was discharged from the sinks.

Owing to the fact that water readily absorbs gases, and when saturated will pass them through, it is necessary that we should not lose sight of the fact that a trap may hold its seal thoroughly, and yet the waste pipe, to which it is connected, may require venting, if satisfactory sanitation is to be the result. Some years ago I had to deal with a case which provided ample proof of this. A mansion in the aristocratic quarter of London was occupied by a wealthy elderly lady. In the kitchen a sink had been fixed to one of the interior walls. The total length of the waste pipe was about fourteen feet. Owing to the fact that it was difficult to carry a vent pipe to the outer air, the waste pipe had an internal diameter of 2½ inches, while the diameter of the trap connected to it was 2 inches only, consequently the trap always retained its seal in spite of the length of the waste pipe. When the work was new, no complaint was made, but after a time the servants complained of smells on entering the kitchen in the morning. By the orders of the owner, the kitchen windows were closed and fastened throughout the night. The firm that had carried out the work was called in, and the trap and waste pipe were well flushed with sal soda and hot water. This resulted in some temporary improvement but it did not put an end to the trouble, and soon the smell was as bad as before. After the firm had cleaned the waste pipe several times, the owner decided to try elsewhere, and the firm with which I was then connected were asked to deal with the matter. I met the owner, and informed her that a vent pipe was the only remedy and as this had to be taken across the ceiling, I suggested that 1½-inch light gauge copper pipe should be used for the purpose. The owner expressed her willingness to have the work done provided that I could furnish proof beforehand that the vent pipe would overcome the trouble, she herself being very doubtful about the matter. I answered that I could give the necessary proof if I were allowed to put the sink out of service after dinner was served that evening and, permission having been given, I removed the cleaning screw from the trap, and caught the water which formed its seal, in a ladle, and marked the extent to which the ladle was filled. After throwing away the water, I filled the ladle to the point marked with molten tallow and having replaced the cleaning screw, I dried and warmed the trap with the torch, and poured the molten tallow into it. When the tallow had set, I filled the sink with clean water and left instructions that it was not be interfered with until after my visit on the following morning, when I expected that I should be informed that no smell had been noticed.

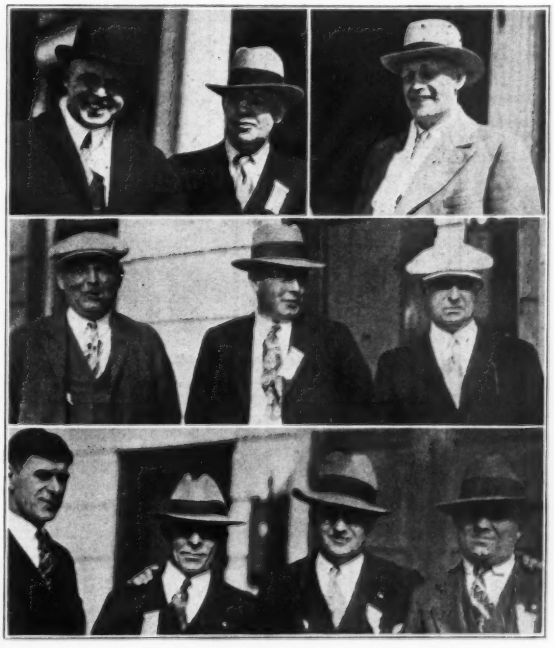
Early the following morning, before I had left the shop, a 'phone call came through, telling us that there was no smell that morning, and that they wished us to put the sink into service again at once, and get the necessary vent pipe finished as soon as possible.

This was a clear instance of odors passing through the seal of a trap, but when a vent pipe was connected, the trouble was overcome. It cannot be too clearly pointed out that the prevention of trap siphonage is not the only purpose which a vent pipe has to serve.

Mr. McGonegal sent me the drawing, Fig. 1. It shows wet venting as permitted in the city of Washington, D. C. The length of the bath waste pipe appears to be about 3 feet, but the traps of the lavatories appear to be connected directly to the "vent-waste" pipe; this is wet venting carried out in strict accordance with sound principles, and it does not exceed those limits which are the boundaries of perfect safety. Such wet venting is not likely to be objected to by anyone; and that it makes a satisfactory job is beyond question, provided that it is installed according to the drawing. But what of those cases where the branches are exceeded in number and in length? Such installations make wet venting a possible source of danger to health.

THE DIFFERENCE BETWEEN WET VENTING AND CIRCUIT VENTING

IN VIEW of the fact that I can only approve of "wet venting" to a limited extent, Mr. McGonegal is unable to understand what he terms my "undeniable approval of



Top picture: J. B. Stewart, Republic Brass Co.; D. W. Berry, Anchor Pipe & Supply Co., Detroit; Arthur Daniel, Murray W. Sales & Co., Detroit. Middle picture: Chester Grant, W. Lindemuller, P. Pipe, all of Grand Rapids. Bottom picture: W. Pieschke, Louis Silver, both of Detroit; M. L. Sampliner, Eclipse Mfg. Co.; Sam Levin, Detroit.—Photos taken at the recent convention of the Michigan State Association of Plumbing and Heating Dealers

the circuit vent principle." I will endeavor to make the matter clear. In circuit venting, as we understand it in Britain, a number of what may be termed secondary main stacks, which generally run with a fall horizontally, are connected to vertical primary main soil or waste stacks at the lower end, and at the higher end are connected to a vertical main vent stack at a point that is above the height of the plumbing fixtures. The main vent stack is either carried up through the roof, or it is connected into the main primary soil or waste stack at a point that is above the highest plumbing fixtures that are connected to it.

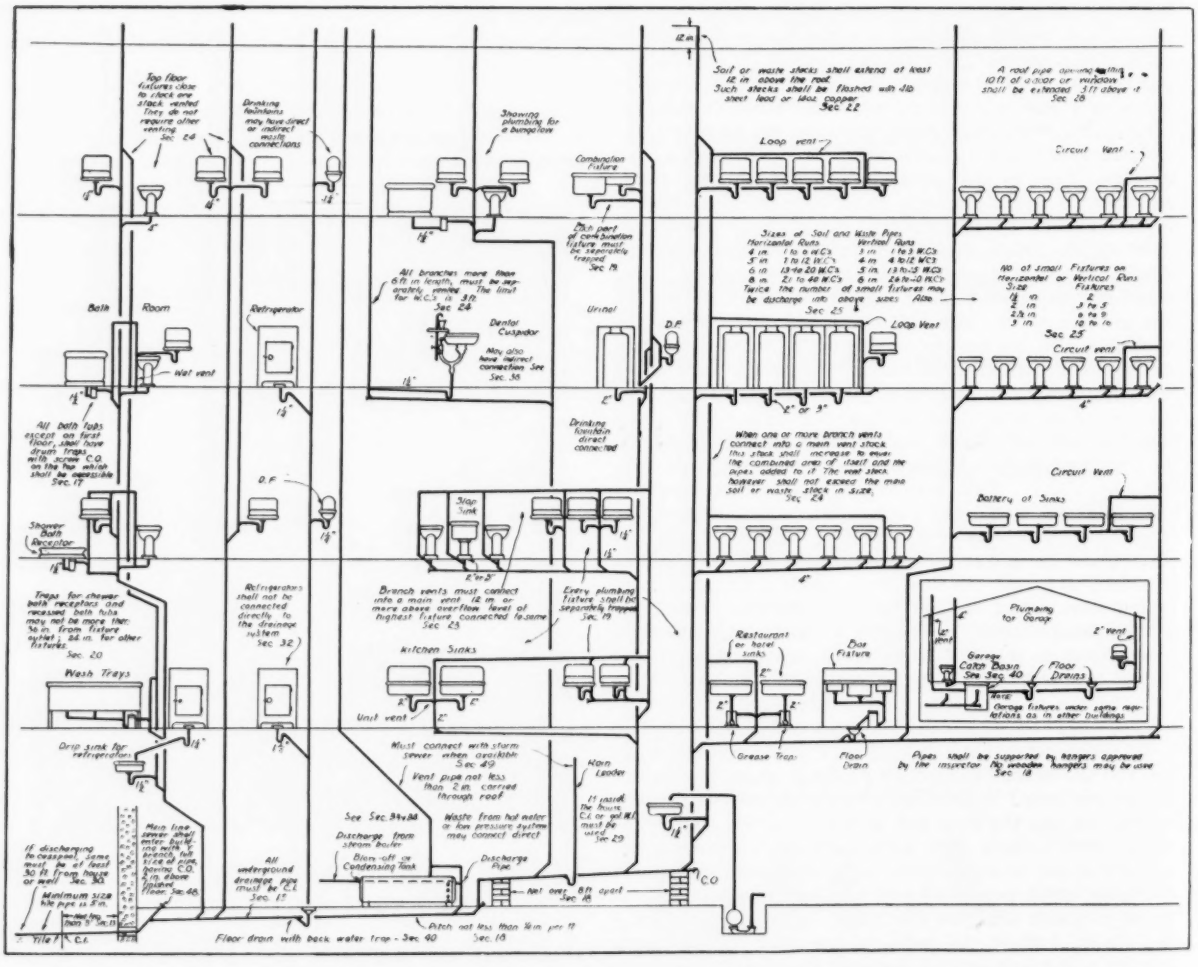
A number of smaller branches, generally from W. C. bowls or from lavatory basins, are connected directly to the secondary horizontal soil or waste stack. Each separate water closet connects to a short branch soil pipe having an internal diameter of 3 or 3½ inches, and the branches are connected to a secondary horizontal stack, which has an internal diameter of not less than 4 inches, in many cases it may be larger. It is unusual for more than two W. C.'s to discharge at the same instant, consequently such discharges would not cause trap siphonage, nor would they prevent the secondary horizontal stack from giving satisfactory service as a vent pipe. It is, of course, assumed that the total length of each separate W. C. branch will not exceed three feet.

It is far easier to define the limits of "circuit venting" than it is to define the limits of "wet venting"; moreover, in proper circuit venting the short branches, or the traps, all discharge directly into pipes that have a larger internal diameter, and along which a current of air is continually passing. Circuit venting not only prevents trap siphonage, but it also provides for the passage of an abundant volume of air throughout practically the whole of the system of pipes; therefore I prefer it to the rather vaguely defined "wet venting."

Although I see no reason to object to wet venting, when it is confined to the limited extent indicated by the drawing sent by Mr. McGonegal, I submit that it is well to be on our guard against anything that may introduce a class of work which may possess grave defects, especially in those cases where the work is not carried out under the supervision of a plumbing inspector or some other competent authority.

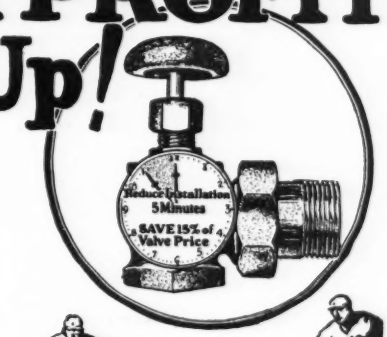
A. W. Barnes,
London, England.

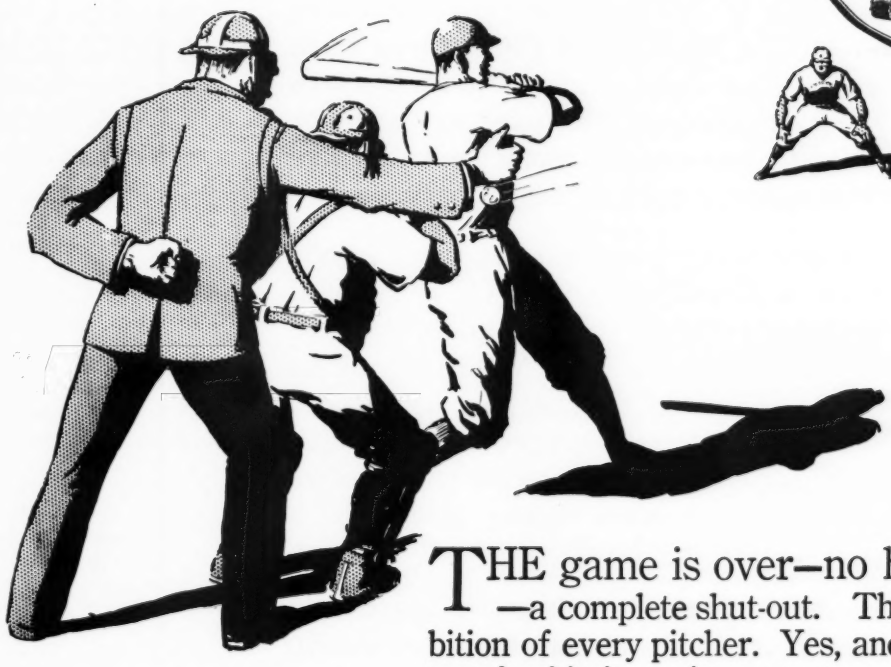
Pilot Drawing Used in Watertown, N. Y.


Soil or waste stacks shall extend at least 12 in. above the roof. Such stacks shall be flashed with 4lb sheet lead or 16oz. copper. Sec. 22
Loop vent
Circuit Vent
Bath Room
Refrigerator
Wet vent
Dental Cuspidor
Urinal
D.F.
Loop Vent
Circuit vent
Battery of Sinks
Shower Bath Receptor
Traps for shower bath receptors and recessed bath tubs may not be more than 36 in. from fixture outlet, 24 in. for other fixtures. Sec. 20
Wash Trays
Kitchen Sinks
Unit vent
Drip sink for refrigerators
Restaurant or hotel sinks
Bar Fixture
Garage Catch Basin Sec. 40
Floor Drains
Plumbing for Garage
Grease Trap
Floor Drain
Pipes shall be supported by hangers approved by the inspector. No wooden hangers may be used Sec. 18
Main Leader
Vent pipe not less than 12 in. carried through roof
Must connect with storm sewer when available Sec. 49
Waste from hot water or low pressure systems may connect direct
Discharge from steam boiler
Blow-off or Condensing Tank
Discharge Pipe
Not over 8 ft. apart
Sec. 18
Floor drain with back water trap - Sec. 40
Sec. 16

Watertown, N. Y., is one of the progressive cities that have recently adopted the pilot drawing in connection with the work of their plumbing departments. The Watertown, N. Y., pilot drawing is shown above

There's an EXTRA PROFIT in the Make-Up!



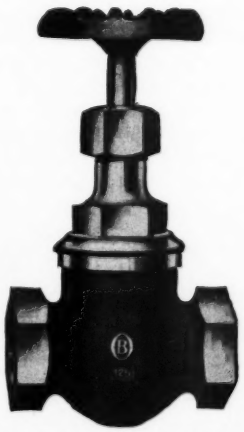


THE game is over—no hits—no runs—a complete shut-out. The hope and ambition of every pitcher. Yes, and every catcher, too, for his is an important part of every well pitched game.

The battery, both pitcher and catcher, were the key men in this shut-out game, for what chance would even the best of pitchers have had with just an average catcher?

And similarly, what chance have the best of journeymen with just average materials? But give them the best of materials, and the battery for the day, "Good journeymen and good materials", will pitch the kind of a game that shuts out competition.

Ohio Brass Valves, designed to *save time in the make-up,* are the class of material that help good journeymen. And the contractors who are supplying their men with these valves are winning more contracts and increasing their own profits.



Ohio Brass No. 10 Line
O-B Composition Disc
Globe Valve
Recommended for pressures up to 150 lbs.

Ohio Brass Company
Mansfield, Ohio
931V

Ohio Brass Co.

NEW YORK CHICAGO PHILADELPHIA PITTSBURGH ATLANTA CLEVELAND ST. LOUIS SAN FRANCISCO LOS ANGELES

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CAR EQUIPMENT
MINING MATERIALS
VALVES

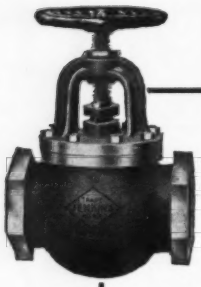


Fig. 141. Screwed, Jenkins Standard Iron Body Globe Valve

'64 — and 64 more!

The year of '64 saw the Jenkins Valve put on the market. 64 more years have passed and the Jenkins Valve is more firmly established than ever in the favor of engineers in all industries and valve users in every part of the country.

In the year-by-year building up of confidence and strengthening of a national reputation, rigidly high standards have played an important part. Metal for Jenkins Valves is proved by analyses before and after casting; the design provides strength in every detail. The finished valve before it leaves the Jenkins factory must pass a wide margin test under severe conditions.

There are Jenkins Valves for practically every plumbing and heating requirement, obtainable through supply houses everywhere.

JENKINS BROS.

80 White Street, New York, N. Y. 133 North Seventh Street, Philadelphia, Pa.
524 Atlantic Avenue, Boston, Mass. 646 Washington Boulevard, Chicago, Ill.
JENKINS BROS., Limited, Montreal, Canada; London, England
Factories: Bridgeport, Conn.; Elizabeth, N. J.; Montreal, Canada

Always marked with the "Diamond"
Jenkins Valves
SINCE 1864

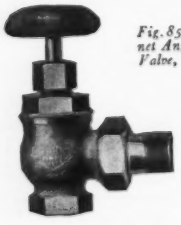


Fig. 853. Low Bonnet Angle Radiator Valve, male union

A Jenkins Job

The Title Insurance and Trust Co., Los Angeles, Cal., is equipped with Jenkins Low Bonnet Radiator Valves, in the new chromium finish.

Gravity or Pressure Systems?

Here is a communication from one of our valued correspondents, Leon H. Thomas, Kennett Square, Pa. Mr. Thomas has made some very good points. But it brings up some questions for discussion. Readers of "Domestic Engineering" are urged to reply. Would the raising of the expansion tank to sixty feet in height give 1,800 grains of motive power? Could this be obtained unless the hot water supply and hot water return columns were also made sixty feet high? Where should the pressure tank be placed?

IS A pressure system of hot water heating really better than the open tank or gravity job? The average heating man has often asked himself this question. In a great many cases he has put a job under pressure and found it worked better. He found he could establish circulation in radiators that never became warm with the gravity system. But why is it better? What must the fitter take into consideration when he puts a job under pressure?

Instead of taking any engineer's word for anything, let us use our own laboratory and do our own reasoning. Let us examine the elements we have to work with and make our own experiments.

If we take an ordinary vessel and put in a quantity of water and apply heat we find that after a short time tiny bubbles appear at the bottom of the vessel. If we place the hand in the water, it will be quite cool at the top and get warmer as we reach the bottom. What is taking place? The heat is expanding the molecules of air in the water. As they expand they become lighter and move toward the top. The cooler water, not having the air molecules expanded, is heavier and sinks to the bottom. We have established circulation of the water by applying heat.

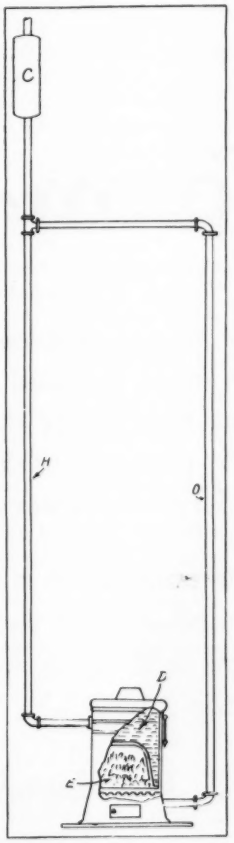


Fig. 2

Now, in our second experiment, let us take two vessels of the same size, containing the same amount of water, and apply the same amount of heat to each vessel. Allow one to heat normally and stir the other with the hand, carrying the heated water from the hot plate at the bottom and mixing it with the cooler water in the vessel. We find that when the water in the vessel we are stirring becomes so hot we can no longer bear the hand in it, we can plunge it in the other vessel, that has been heating normally, and cool it. What have we done? We have increased heat absorption by artificial circulation, or we have been able to heat a body of water to a designated degree with less fuel.

In our third experiment (and we have all performed this one), let us take two cups of hot coffee—allow one to cool normally and stir the other with a spoon. We know, of course, that the one we stir will cool a great deal more quickly. Why? Because we have brought the heated elements into contact with the air more rapidly and have increased heat transmission by artificial circulation.

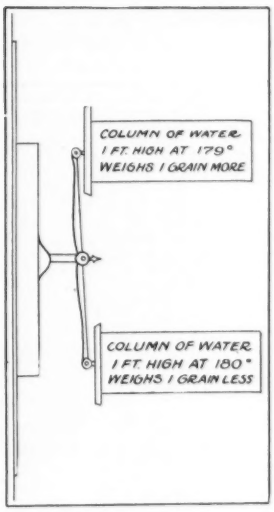


Fig. 1

Now that we have made these simple experiments, let us see what bearing they have on hot water heating. But before we go any further, let us make one more test.

Suppose we have two columns of water, each one foot high; heat one column to 179 degrees and the other to 180 degrees. If we weigh them we will find that the column of water at 179 degrees weighs one grain more than the column heated to 180 degrees. (See Fig. 1.) If it were possible to extend these columns twenty feet in the air instead of one foot, keeping the same temperature difference of one degree, we should find that the twenty-foot column at 179 degrees weighed twenty grains more than the column the same height at 180 degrees.

Putting these facts together, we find that the motive power, or the factor that is causing our circulation, must be the temperature difference between the flow and return at our boiler times the height of our column or the static head as it is generally known. If we take the ordinary gravity job and place a thermometer at the flow outlet and another at the return outlet, we will find a temperature difference of about thirty degrees. The static head is usually about twenty feet—that is, the expansion tank is usually about twenty feet above the return inlet of the boiler. If we use the one grain of weight for each foot of elevation of our expansion tank per degrees difference in temperature, we find the motive power on the gravity job to be 30 times 20, or 600 grains. (See Fig. 2.)

If it were possible to place the expansion tank sixty feet in the air instead of twenty, our motive power would be 30 times 60, or 1,800 grains, and our heat absorption at the boiler and heat transmission at our radiators would be theoretically three times as great. However, our frictional resistance is increased as our pressure is applied, so we would not be able to realize more than about forty per cent of the additional motive power, but that means that we would be able to do the same work we had been doing with sixty per cent of the fuel we had been using and that a square foot of radiation is actually doing forty per cent more work than it had been doing with the open gravity system. Making the system a "closed system" accomplishes the same result of added pressure regardless of where the expansion tank is placed.

If this be true, why do any engineers recommend anything but pressure systems of hot water heating? There is but one reason that any of them have ever hesitated, and that is the fact that when you seal a job you

LEAD PIPE

Uniform~

Due to the processes under which it is made, our lead pipe is uniform. That means that every inch of our lead pipe is of the same high quality as every other inch.

This uniformity means a great deal because it gives the assurance that there will never be a weak spot in the line.

Use Lead Pipe!

NATIONAL LEAD COMPANY

LEAD
THE
EVERLASTING
METAL
THAT ONLY
A PLUMBER
CAN INSTALL

National Lead Co.
(Principal Office)
111 Broadway, N. Y. C.

Georgia Lead Co.
Atlanta, Ga.

National Lead Co.
(Jas. Robertson Lead Works)
Baltimore, Md.

Chadwick-Boston Lead Co.
Boston, Mass.

National Lead Co.
Buffalo, N. Y.

E. W. Blatchford Co.
Chicago, Ill.

National Lead Co.
(Raymond Lead Works)
Chicago, Ill.

National Lead Co.
Cincinnati, Ohio

National Lead Co.
Gibson & Price Co.
Cleveland, Ohio

Lawrence Shot & Lead Co.
Omaha, Neb.

John T. Lewis & Bros. Co.
(Tatham Bros. Works)
Philadelphia, Pa.

National Lead & Oil Co.
of Pa.
Pittsburgh, Pa.

National Lead Co.
St. Louis, Mo.

National Lead Co.
(Northwestern Works)
St. Paul, Minn.

Hoyt Metal Co., Ltd.
of Canada
Toronto, Canada

must depend upon some mechanical device to relieve excess pressure because water, when heated, expands very rapidly and water is practically incompressible, and when you seal a job to the atmosphere you are depending upon a valve of some type to relieve the excess pressure before the pressure becomes actually dangerous.

So in installing a pressure system of hot water heating, examine the relief valve minutely. Almost any type of valve, even the simplest and the cheapest, will relieve pressure for a certain number of times and will operate for a certain period of time. There are three things that cause valves to fail to operate, and before a relief valve is accepted the buyer should make sure that it is free from mechanical and structural defects.

It is necessary to construct valves so that corrosion and stoppage from other causes may be avoided, so that mineral deposits cannot build up over the plunger, and so that sediment cannot accumulate between the seat of the valve and the outlet. The buyer should examine the valve himself, put it to every possible test, and make sure that if any part of the valve should break it will continue to function. If the valve can pass these tests, the contractor should not hesitate to use the pressure system of hot water heating and he may rest assured that he has given his customer the most efficient type of heating system it is possible to install.

A job that works well as a gravity job, works better and more economically under pressure, and many jobs that do not work at all as gravity systems are cured by putting them under pressure. And, of course, we all realize that, with a pressure system, we are able to take the expansion tank out of the attic or upstairs rooms and put it in the cellar where it is less likely to freeze, to say nothing of the saving in room for the customer as well as saving in installation costs for the contractor.

There is a definite place for this tank, although it will work more or less satisfactorily in any place or position.

We should like to see the position of the pressure tank discussed in "Domestic Engineering."

Comment by Harold L. Alt

CORRESPONDENT has raised some interesting points in his discussion, but we do not quite agree with his conclusion in regard to the matter of circulation when the expansion tank is placed 60 feet in the air instead of 20 feet. Assuming that the expansion tank pipe is connected to the return close to the point where it enters the boiler —which is the proper place for such a connection—the raising of the tank from 20 feet to 60 feet in height would increase the head on the boiler and, in fact, on the whole heating system, but it would not increase the height of the vertical risers. Therefore, the difference in weight between the column of hot water in the supply pipe and the column of hot water in the return pipe would be the same in either case, provided that the temperature difference between the two columns is not altered.

Raising the open tank to a height of 60 feet, however, will increase the head on the system so that the water in the boiler can be raised to a higher temperature without boiling than when the tank is set only 20 feet above the boiler.

In order to obtain the increased circulation of 1,800 grains, it would be necessary for the supply pipe to be carried up 60 feet as well as to have the tank elevated. The radiators themselves would not do 40 per cent more work unless the average temperature difference between the water in the radiator and the temperature in the room were increased 40 per cent.

Since the ordinary temperature in a hot water radiator is usually taken at 180 degrees F. and the room temperature is presumed to be 70 degrees F., then the temperature difference on the open hot water system is

180 minus 70 equals 110 degrees F.

and to increase this 40 per cent it would be necessary to add 110 times 40 per cent or 44 degrees F., so that

180 plus 44 equals 224 degrees F.

This is a pretty high temperature to expect to carry in the radiators even in a closed hot water system, as the temperature at the boiler would have to be somewhat higher.

The second point is that an increased heat transmission (through the boiler material from the fire into the water) which is caused by rapid circulation of the water across the heating surface, does not necessarily change the overall efficiency of the boiler unless the temperature of the flue gas is lowered. It does, however, increase the efficiency of the heating surface in the boiler by permitting a more rapid transmission of heat.

A tank in the basement will be a great help in the circulation of a hot water system on account of the higher temperature to which the water safely may be raised without danger of boiling. Readers of "Domestic Engineering" might be interested in discussing whether any fuel saving would result.

COMMENTS ON "THE RETAILER IS ANALYZED"

Editor, "Domestic Engineering":—

I have read your editorial, "The Retailer Is Analyzed," about every week since it was published, indicating that I consider the matter in question the most important problem confronting the plumbing industry, which must be solved, and quickly, so that this business will become, as you put it, "Better for Everybody."

For the fellow who has not fitted himself to progress in the shoes of a master, will undoubtedly be better off financially by working with the tools, while the manufacturer and the jobber whose vision will stand a lot of broadening, cannot hope to attain their objective either individually or through the instrumentality of the Plumbing and Heating Industries' Bureau, until they interest themselves in this vital problem and lend their best effort in its solution. All other matters are secondary until a solution to this one is obtained and put into effect.

The writer of "The Retailer Is Analyzed" is certainly on the right track, but I do not agree with all of his deductions. The name "retailer" as used in the article is properly used, if meant to pertain only to the first paragraph of the article, but the assumption that 77 per cent of the plumbing and heating business was done by 35.1 per cent of the retailers is somewhat misleading. It would be correct to say that 35.1 per cent or nearly so of the plumbing contractors do the 77 per cent of total business outside of that which is slipping to the mail order and wholesale-retail houses as well as the gas companies, who are actually taking the business away from us by supplying "it." The 35.1, as well as the 19.5 and the 45.4 are 100 per cent lacking in "it." The manufacturer don't offer "it," neither does the so-called wholesaler have "it."

"It" is not a new brand of bunk. "It" is responsible for achievement of the centuries of man's existence. Without "it" we stand still or go backward. If the manufacturer will only offer "it," the jobbers will supply "it" and once the master plumber gets "it"—oh boy!

I will tell you what "it" is some time.

Yours very truly,

Wheeling, W. Va. Geo. W. Redeker,
Pres., West Va. Master Plumbers Assn.

A Nation-Wide Program to

.....and to Bring Increased Business to

These and Other Big-Circulation National Magazines are Continually Carrying a Message of Better Homes and Better Heating to Millions of America's People

The Saturday Evening Post
Good Housekeeping
Country Gentleman
House and Garden
House Beautiful
Delineator
Christian Herald
Arts and Decorations
Garden and Homebuilder
Country Life
Atlantic Monthly
Golden Book
Harper's Magazine
Review of Reviews
Scribner's Magazine
World's Work
Better Homes and Gardens

Advertising That Will Sell Radiator Heating

THIS extensive advertising, appearing regularly in the above-mentioned national magazines, will prove a real service to the public and a genuine benefit to our industry and its every individual member. It safeguards the home comfort and health of the nation; it promotes better homes and therefore more homes; it means consequently, increased service and increased business for the members of the heating fraternity.

AMERICAN RADIATOR

Promote Radiator Heating

Every Member of Our Industry

EARLY in 1928 the American Radiator Company initiated a million dollar advertising campaign—one of the most important and far-reaching programs ever organized in the interest of modern radiator heating and the upbuilding of our industry.

Striking double page and single page advertisements in four colors have been carrying, and will continue to carry, a message of better homes and better heating to millions of people through the Saturday Evening Post, Good Housekeeping, Country Gentlemen, House and Garden, House Beautiful, Delineator, Christian Herald, Atlantic Monthly, Red Book, World's Work and other national magazines.

Our Common Problem

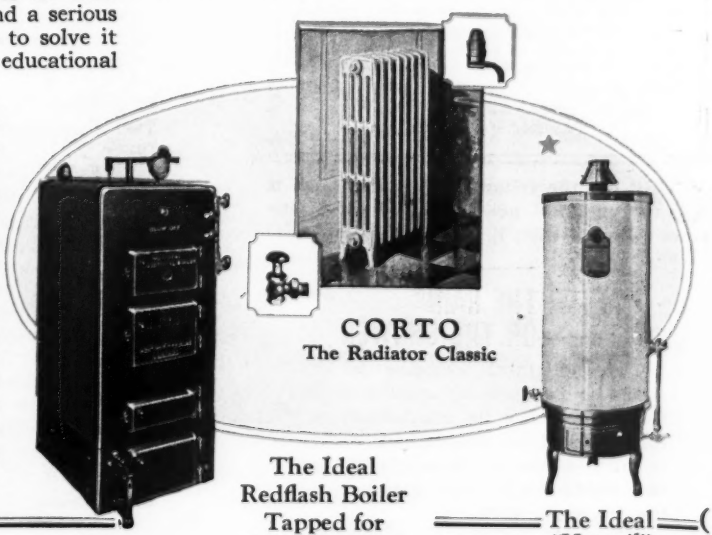
At the present time our industry and the people of this country face a crucial period. Ours is an age of extravagance—an age in which the more enticing luxuries of life lure families from purchasing necessities for their homes. This is a real problem and a serious one—and we are doing our share to solve it through this million dollar educational campaign.

In every advertisement we are pointing out that only a good radiator heating plant can assure 70 degrees steady warmth in every room all winter, regardless of weather conditions; that radiator heating is the cleanest and most healthful system known; that it cuts fuel bills and lasts as long as the house; that because of modern refinements and improvements in cleanliness and beauty it allows the cellar to be transformed into a useful, livable place; and finally, that due to its practically universal recognition, it materially increases the resale value of the property.

This convincing and continuous advertising is destined to exert a tremendous influence in securing for our industry that share of the nation's business which it rightly deserves. It will serve to make our people "radiator heating conscious" and to awaken them to the realization that radiator heating is the accepted system of our day.

Spreading the Doctrine of Radiator Heat

This is the doctrine of radiator heat that we are spreading month after month, and will continue to spread for years to come. We know you will endorse this great program and lend it your whole-hearted cooperation for all that it means toward the upbuilding of our industry and the establishing of a higher standard of health and living comfort for America's people.



The Ideal Redflash Boiler Tapped for Excelso Heater

The Ideal "Hotcoil" Gas Water Heater

★Approved by Good Housekeeping Institute

COMPANY

MAIL THIS COUPON FOR DETAILED INFORMATION
AMERICAN RADIATOR COMPANY
Advertising Department Dom. Eng. 8-18-28
40 West 40th Street, New York City.
I would like to receive your Sales Helps and detailed information on how I can tie up most effectively with your national campaign for better homes.

Name.....
Address.....
City.....State.....

RETAIL ADVERTISING SERVICE

$4.20 for twelve weeks' service. We send new cut each week. You take copy from this page.

In any carefully planned merchandising program, newspaper advertising must be included. And the average plumbing and heating contractor is too busy with technical matters to have time for giving any real thought to advertising—that is, to the actual detail of writing the copy, making the layout, etc. That's the reason for this page—to give you, each week, two complete newspaper advertisements, with copy and illustration. Only $4.20 for twelve weeks. We send reprint of this page and a new cut each week.

Series No. 27

After Play...*a shower*

THE benefits of vigorous exercise are not fully enjoyed unless the exercise is followed by a thorough cleansing of the skin to carry away the impurities which the body has eliminated through the pores in perspiring. Nothing is more invigorating, more conducive to the comfortable feeling of well-being than a shower bath after exercise—and that's equally true after the day's work in the office or store. A shower can be added to your existing equipment without great expense.

(In this space your Name, Telephone Number and Address)

CLIP out the following item and hand it to your local newspaper for use in the news columns—they'll be glad to have it.

"AFTER THE RAIN" —OR THE SHOWER

That delightful freshness which seems so invigorating after a summer shower has its counterpart in the effects of the shower bath which ought to follow any form of exercise and which might, with benefit, follow the day's work.

"There is nothing so productive of comfort," says Harry Brown, local plumbing and heating contractor, "as a good shower bath at the end of a hard day's work. It wipes out fatigue like magic. Then to slip into fresh clothing and go to the evening meal—it's real comfort.

"There ought to be shower equipment in every home because of its convenience and the comfort it will bring."

After Exercise or Work...*a shower*

TO induce the feeling of comfort and well-being after exercise—or after a hard day's work—we recommend most heartily the shower bath. It's invigorating—it gives one that tingling feeling of healthily coursing blood. Shower equipment may be added easily to existing bathroom fixtures—without great expense—or you may have a shower completely enclosed, for a reasonable cost.

(In this space your Name, Telephone Number and Address)

HERE is a good "hot weather" letter to send to a list of home owners. Your stenographer can get them out in her spare time. Cash in on this seasonable merchandising.

HARRY BROWN
PLUMBING & HEATING

Two Rivers, N. Y.,
Aug. 18, 1928.

Mr. Edward Jones,
Two Rivers, N. Y.

Dear Sir:

Ever long for a swim when you're at your desk on a sweltering day?

A great many times a man will promise himself that he'll "jump into the tub" when he gets home. But it's an effort to get a tub bath ready and it's apt to take too much time before the evening meal.

Now—if, when you get home, you had a shower bath, you can see what a difference it would make. Five minutes in all and you can be undressed, under the shower, have a good toweling and be ready in fresh clothing for your dinner. And with what a feeling of comfort!

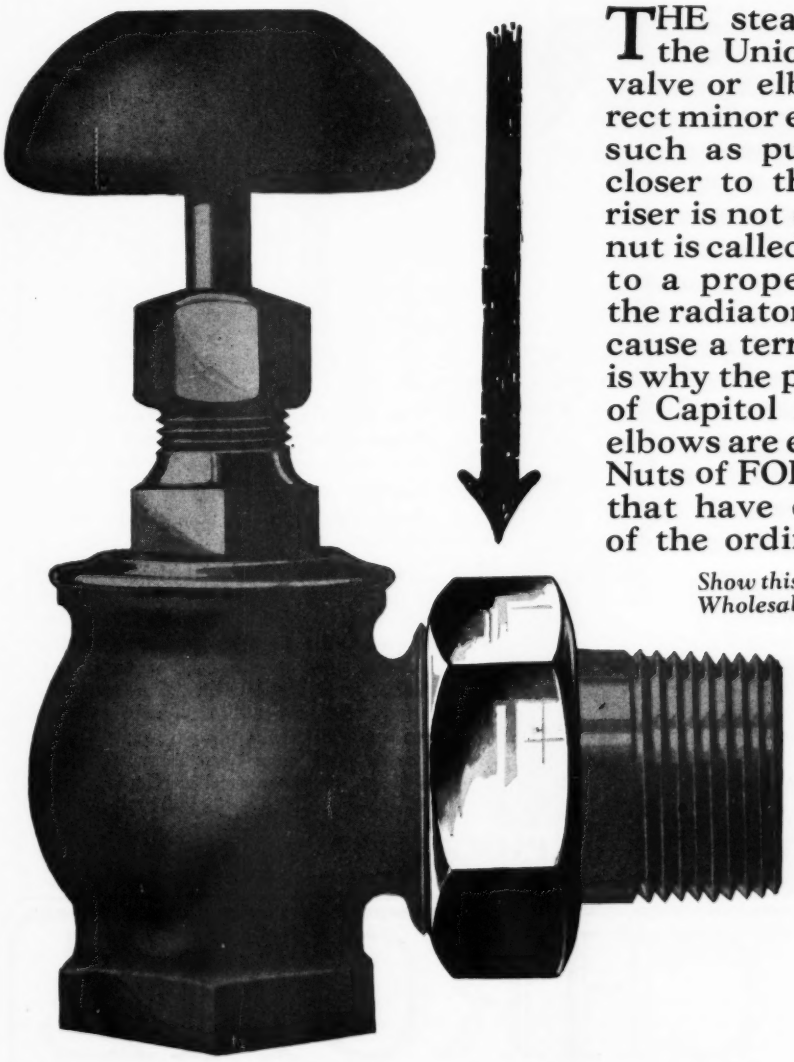
We wouldn't think of finishing up a round of golf or an exercise period in the gymnasium without an invigorating shower. But somehow we don't seem to see that the day's work ought to be followed by a shower to help us to relax, to slow down, and to cool off.

We can instal shower equipment with your existing fixtures very inexpensively. Won't you phone and let us show you how it can be done?

Very truly yours,
HARRY BROWN.

CAPITOL

—and Now Union Nuts of FORGED BRASS!



THE steamfitter knows that the Union Nut of a radiator valve or elbow must often correct minor errors of installation, such as pulling the radiator closer to the pipe line or, if a riser is not exactly straight, the nut is called on to force the pipe to a proper connection with the radiator. Such adjustments cause a terrific strain—and this is why the principally used sizes of Capitol radiator valves and elbows are equipped with Union Nuts of FORGED BRASS—nuts that have double the strength of the ordinary cast brass nut.

Show this advertisement to your Wholesaler—insist on Capitol.

Capitol Steam Union Radiator Valve No. 41 shown at the left is equipped with forged brass Union Nut.

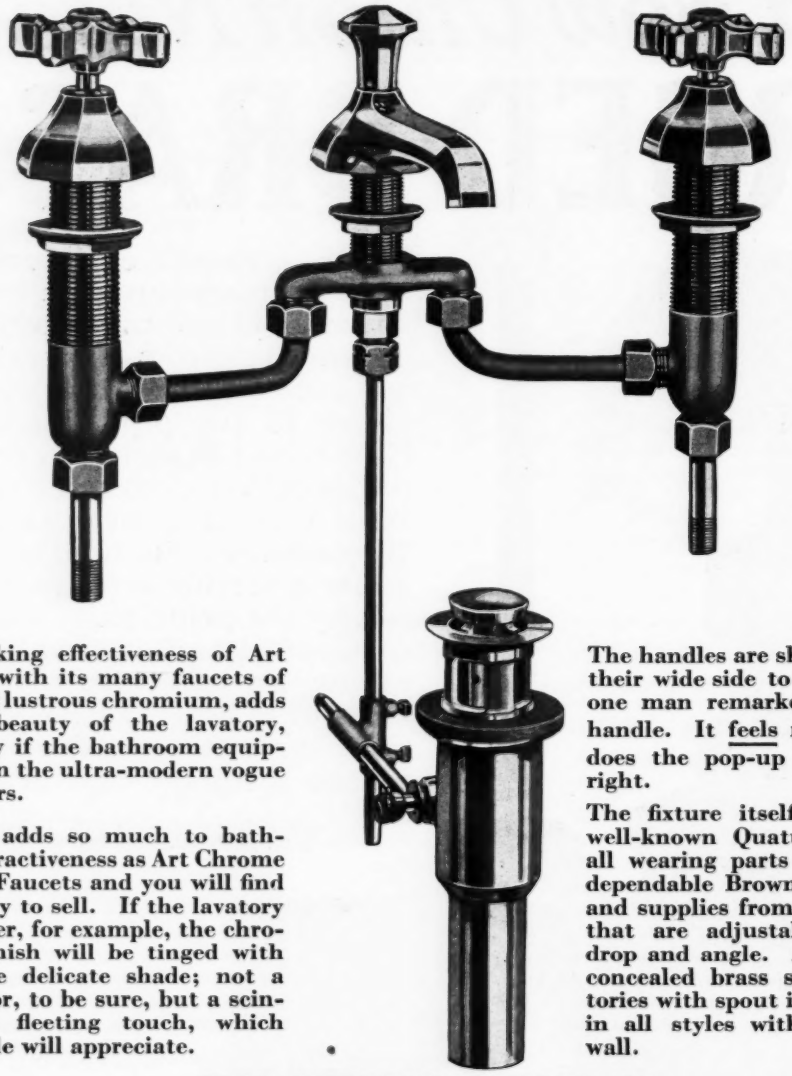
CAPITOL BRASS WORKS

Division of the Michigan Smelting and Refining Company

MANUFACTURERS OF BRASS VALVES, BOILER TRIMMINGS AND PLUMBERS' BRASS GOODS

DETROIT, MICH.

MASTERPIECES IN ART CHROME No. 3



The striking effectiveness of Art Chrome with its many faucets of enduring lustrous chromium, adds to the beauty of the lavatory, especially if the bathroom equipment is in the ultra-modern vogue —in colors.

Nothing adds so much to bathroom attractiveness as Art Chrome Chicago Faucets and you will find them easy to sell. If the lavatory is lavender, for example, the chromium finish will be tinged with the same delicate shade; not a solid color, to be sure, but a scintillating, fleeting touch, which your trade will appreciate.

The handles are shaped to present their wide side to the fingers. As one man remarked, "I like this handle. It feels right." And so does the pop-up knob. It feels right.

The fixture itself embodies the well-known Quaturn units with all wearing parts renewable, the dependable Brown pop-up waste, and supplies from valves to spout that are adjustable for spread, drop and angle. Also made with concealed brass spout; for lavatories with spout in the ware; and in all styles with valves in the wall.

THE CHICAGO FAUCET CO.
2700-22 No. Crawford Ave. Chicago

ART CHROME
CHICAGO FAUCETS
Life Long Service ~ Life Long Lustre

QUESTIONS

ASKED BY READERS AND ANSWERED BY EXPERTS

HEATING RANGE BOILER AND RADIATOR BY FURNACE COIL

Editor, "Domestic Engineering":—I am to connect up a 30-gallon range boiler and a two-section wall radiator, 9

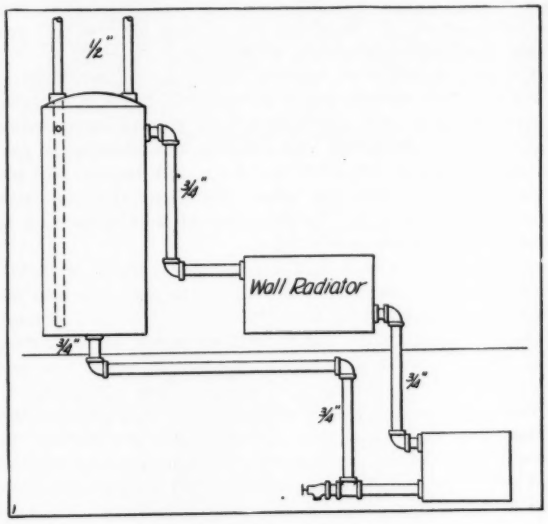


Fig. 1

sq. ft., on the same level. This system is to be heated by a coil in a furnace in the basement.

The range boiler and the radiator are on the first floor. Kindly show me a good way of installing this system.

Ontario. S. W. J.

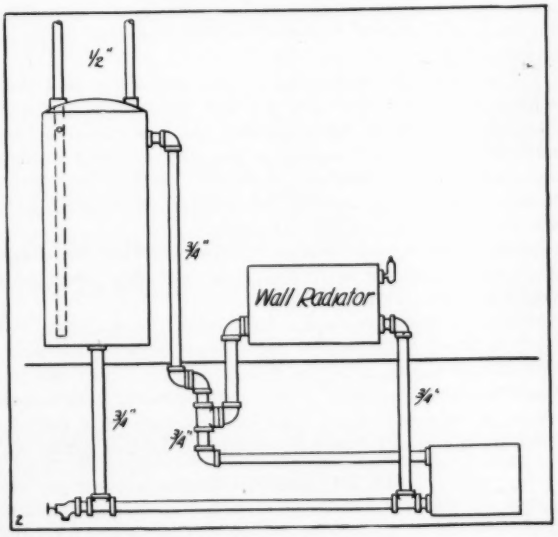


Fig. 2

We submit two sketches, either of which will give satisfactory results.

In Fig. 1 all the hot water passes through the radiator and then to the tank. In Fig. 2 the supply is divided. In the latter case it is necessary to install an air valve on the radiator.

HEATING HOT WATER FOR DOMESTIC USE BY COIL IN HOUSE HEATING BOILER

Editor, "Domestic Engineering":—Kindly give me some information about the best method of heating water for domestic use with a hot water house heating job.

N. Y. S. P. R.

One method is the installation of a coil, but it is difficult to select the size of coil which will give perfect results under all conditions. A large coil will provide an ample supply of warm water with a mild fire, and too much hot water when there is a hot fire, and a small coil, which is just right when the fire is intense, will hardly heat any water at all under a mild fire.

Therefore, where people carry fires at a high temperature so that the water in the boiler and plant is 160 degrees F. and better, it has been found feasible to install auxiliary heaters, and as these heaters are not inside of the fire pot, they do not become overheated and yet deliver a reasonable amount of hot water.

HOW TO REMOVE GREASE STAINS FROM MARBLE

Editor, "Domestic Engineering":—Will you kindly tell me how I can remove grease stains from marble? I am told that there are several ways in which this can be done.

Illinois. F. G. S.

There are a great many recipes for this purpose, several of which are given, as follows:

1.—Mix together in boiling water 1½ parts of soft soap, 3 parts fuller's earth and 1½ parts potash. Cover the grease spots with this mixture, and allow it to remain several hours.

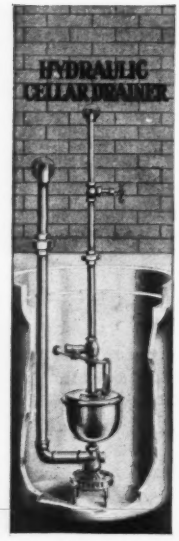
2.—Mix into a paste with water, 1 part of pulverized chalk, 2 parts of soda, and 1 part of pumice. Apply this mixture to the surface of the marble, afterwards washing it off with soapy water.

3.—Apply to the marble a mixture of common clay and benzine.

4.—Mix together equal parts of slaked lime or calcined magnesia and white pipe clay or potter's clay, and with water form a heavy paste. Apply the paste to the marble, and allow it to remain for about 48 hours, covered over with a damp cloth to keep the paste moist. It should then be allowed to dry thoroughly, and be wiped off with a cloth.

David T. Curtis, master plumber of Lincoln, Nebr., has been ordered by his physician to dispose of his business and leave for a different climate. His equipment was purchased by other plumbers in the city and Mr. Curtis will move soon.

Wherever Water Accumulates



A PENBERTHY PRODUCTS automatic

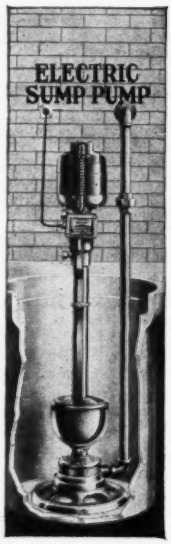
YOUR seepage problem may be the deep basement for a building where the sewer is not low enough for drainage—or the basement of a residence without adequate sewerage facilities. Perhaps it is the drainage of a boiler room, settling basin, fly wheel or elevator sump, a tunnel or scale pit.

The amount of seepage may be considerable or it may be only a small trickle.

Whatever the conditions, there is a Penberthy Sump Pump or Cellar Drainer which will dispose of that seepage in the most economical manner. Either electrical power or hydraulic power can be used, and there is a size to fit every condition.

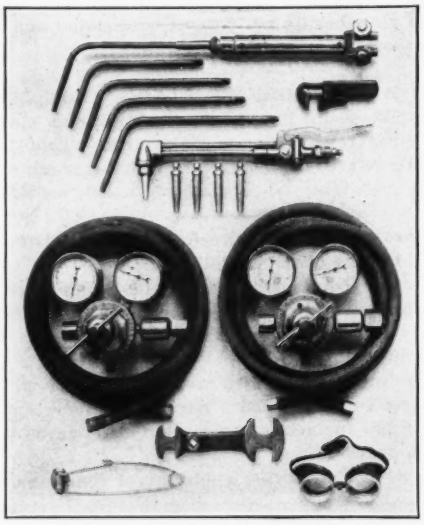
Write for details on the Penberthy Automatic Electric Sump Pump and the Penberthy Automatic Cellar Drainer.

Quality is particularly stressed by the use of copper and bronze throughout.



PENBERTHY INJECTOR COMPANY

ESTABLISHED IN 1886 — DETROIT — CANADIAN PLANT WINDSOR, ONT.



FOR PIPE WELDING

This No. 8888 Combination Outfit is just what you need for all of the cutting and welding on pipe work.
Write the nearest Airco office for information on Apparatus, Airco Oxygen and Airco Acetylene.

AIR REDUCTION SALES COMPANY

Manufacturers and distributors of Airco Oxygen, Airco Acetylene, Airco National Carbide
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AIRCO — DAVIS — BOURNONVILLE

Home Office: 342 Madison Ave., New York City, N. Y.
65 Plants 21 District Offices

Dolan & Olson

(Continued from Page 19)

bath. She had opened both the hot and cold faucet in the tub and tossed her doll into the water. Then she was probably called to go to her grandmother's and left things as they were. Naturally, the doll became waterlogged and got wedged against the waste opening. Result—a flood.

'Course the wall paper was ruined, the floors and wood work will have to be refinished, the furniture will need some touching up, the rugs will have to go to the cleaners, and "Charlie" will have to foot the bill.

IT PAYS TO INVESTIGATE

IT SURE is funny how a fellow will sometimes misjudge another fellow and just to show that two heads may be better than one in sizing up a chap let me tell you what happened just a few weeks ago.

Me and Hank were resting easy for a few minutes when the door opened and a foreign-looking man entered. He talked low, easy and polite. He wanted some information about plumbing and heating, but heating in particular, so Hank reported for duty and talked heating. Finally made a date to meet this chap the following morning to look over the situation at first hand and to secure the data for a quotation.

Well, after this chap had left the store, Hank remarked that this sure looked like a wild goose chase to him because he didn't think that this dark boy had enough money to even make the first installment on a heating job, but I told Hank that he looked good to me just the same and it wouldn't cost much to give him a bid.

And even preparing an estimate and quoting wouldn't mean that we would land the job anyhow because we been finding that we have to figure five jobs to get one and this might be one of the five that would balance the scale and bring us the odd job.

So Hank went over and got the dope, brought it back to the shop and we figured out a proposal.

Not much of a job. Just a few days' work for a fitter, a small heater and some pipe and fittings, but a neat little job to have on the books to fill in between the bigger jobs, and also the smaller ones, because they been running small this year.

Anyhow it figured two hundred dollars and this chap came into the store while Hank was out and I gave him the quotation, neatly typewritten and complete in every detail.

He read it over, asked one or two questions, said that it looked all right to him and I was just wondering how I could duck taking his order for the job, when he remarked that he would like to pay one hundred dollars right now and the balance when the job had been completed. I'll tell the world that I took the money, gave him a receipt, and booked the order.

Hank came in later in the day and growled out something about getting half the jack, but the other half would be another story.

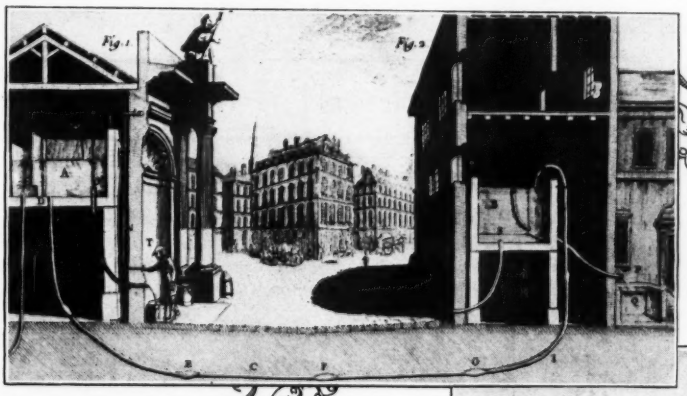
'Course I didn't know but that might be the case, but we been stung before and I guess if we stick in this game we'll get it plenty more, so I said nothing. But the job was finally completed, the foreign-looking gentleman comes in with the other hundred smackers, says that he got a good job and would have something else some day.

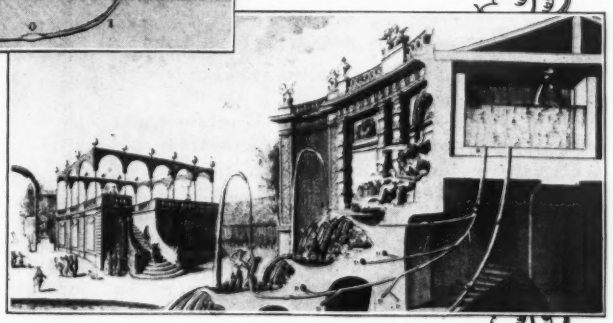
ON THE OTHER HAND

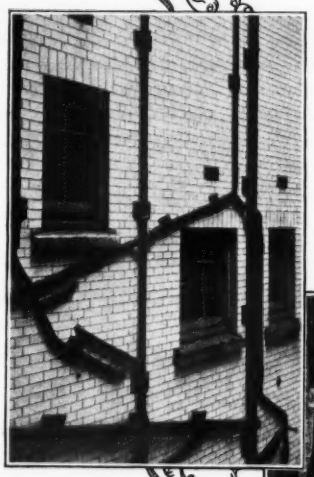
ON THE other hand, we installed a sink, gas heater and hot water tank for a woman that looked good and talked good and when we got through we sent her the

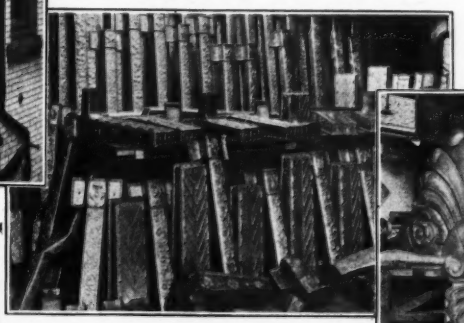
LEAD — ITS STORY AND ITS USES

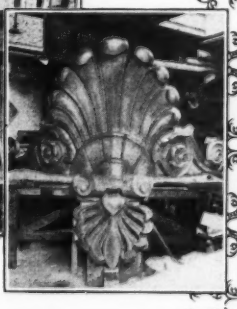
No. 16 in a Series of Picture Stories Describing Lead and its Uses in Plumbing and Sanitation

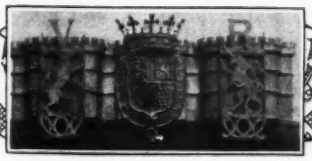












Art *and* Craftsmanship *in* Ancient Plumbing

Many plumbers working with lead do not realize that they are practising an ancient art. At the top, is shown a sectional view of a city street in 1743 with public cisterns lined with lead. Note at the left of the upper picture, the novel faucet construction used for drawing water from a public tank. The next picture from the top shows the use of lead pipe in the construction of the Versailles, France, fountains, and is also from the 18th century. The plumber of these days could often make rightful claim to being an artist as well as an artisan. The lead soil and waste pipes at the left show skilful work. Note the beautiful decorative relief work on the stack of lead rain water leaders in center. At the bottom is a beautifully executed rain water head made from cast sheet lead, and just above it a fine example of cast lead ornamentation for roof work.

usual bill and a couple of statements, then we called on her and found her at home all right and darned if she didn't laugh at me.

Said that she would try and pay it some day, but the way that she said it proved that "some day" would be a long way off, so I checked up on her (just what I should have done in the first place, but she was too smooth for me) and found that some of the other plumbers had met the same lady and were also waiting for that day when the checks and the inclination to pay would meet.

This dame had everything figured out as fine as a frog's eyebrow. She had everything tied up in such a way that it was absolutely law-proof; no personal property, no bank account, no real estate, and even the place in which the work was done could not be liened. You never can tell—the only thing to do is to investigate.

The Schoolmaster on the Placing of Fixtures

(Continued from Page 32)

good practice, but if it is intended to use iron bends with side inlets, that would be O. K.

Fig. 7.—Wm. DeRonde, Paterson, N. J.—Here again the absence of floor plans greatly detracts from the ability to discuss the elevation intelligently.

Two elevations have been submitted, one showing the original plumbing of the house, and the other showing the plumbing which was to be added to the original system.

We do not see how the old and the new plumbing can be shown in separate elevations, for the two must be combined into one system.

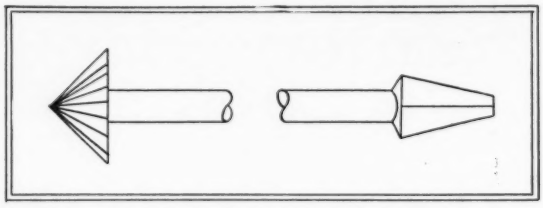
In the future we hope that on problems of this kind, the floor plans with all fixture and stack locations will be submitted along with the elevation. Only in that way is the elevation of any value.

Another point that we want to make is that for any isometric elevation to be of real value, it must be drawn to scale, otherwise it does not tell a truthful story. Please bear these things in mind.

Practical Problems—No. 47

Saves Time in Reaming Pipe

HERE is a little trick which saves time and energy, says a plumber in Pennsylvania. He takes a small reamer made for a hand brace and has the blacksmith put a ½-inch round shank on it. He inserts it in a



medium sized electric drill and uses it to ream pipe up to 2-inch size. Of course, on larger pipe than 1-inch, not very much pressure can be put on the drill, as the windings may burn out in the motor, but with even very little pressure on the drill, it takes but a few seconds to ream 2-inch pipe.

A. L. K., Pottsville, Pa.

DONNELLY SPECIAL RELIEF OUTSIDE SPRING VALVE

THIS VALVE fills a long-felt need in plumbing, heating and other mechanical fields, for the following very important reasons:

No washers of any kind are used—the plunger and seat are metal.

It can never build up on pressure or stick on seat.

It is tested and set at a limited stop of 150 pounds, and is then ELECTRICALLY SPOT WELDED, so as to prevent anyone making a plug out of the valve.

The weld must be broken, and the valve made useless, in order to increase the pressure.

Turning the setting nut downward, however, will set the valve at any required pressure from one pound upwards.

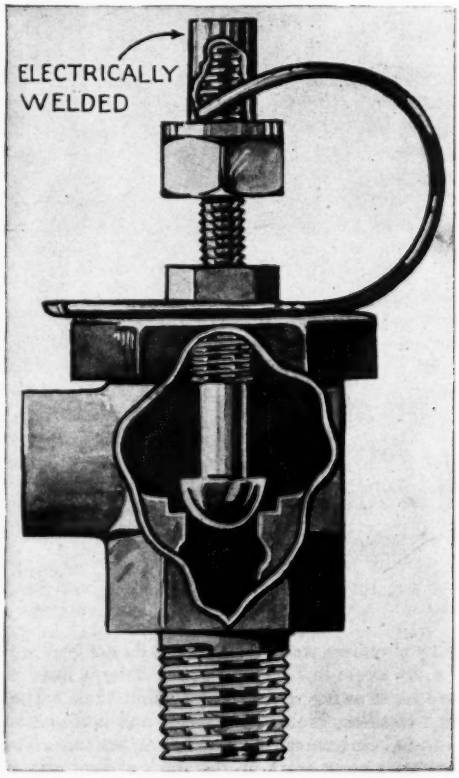
It can be safely installed on hot water domestic, and hot water house-heating boilers, steam, air, oil and gas lines, and is guaranteed to be the finest relief valve on the market.

It is made of the finest grade virgin metal. We guarantee it to function perfectly.

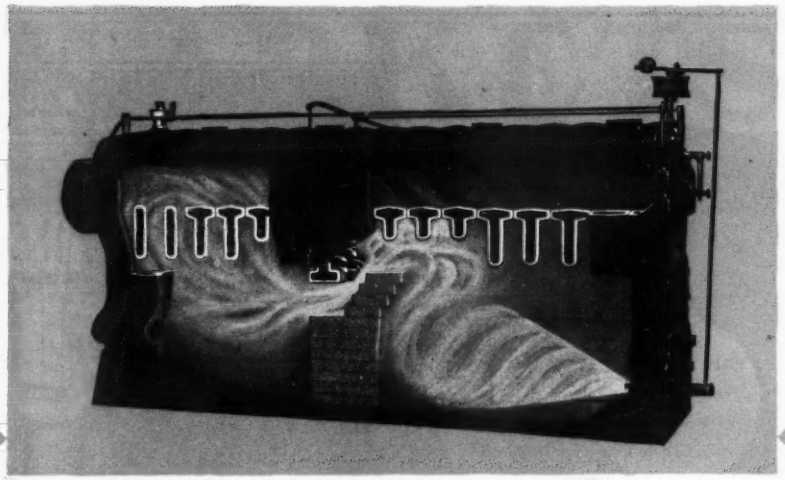
It is endorsed by plumbing inspectors, heating inspectors and engineers all over this country.

This valve is the best insurance you can buy for safety—and the cost is reasonable.

Ask your jobber to supply you or write us



DONNELLY MANUFACTURING COMPANY
INCORPORATED
29 MILLS STREET MALDEN, MASS., U. S. A.



THE NATIONAL SUPER-SMOKELESS BOILER HAS THESE ESSENTIALS FOR EFFICIENT OIL OPERATION

NATIONAL Super-Smokeless Boilers provide large combustion chambers, perfect combustion, long gas travel—three times the length of the boiler—and efficient heating surfaces for absorbing the intense heat that is usually wasted up the chimney in oil-burning boilers.

*The secondary air supply and control of super-heated air, at just the point where it is needed to assure complete combustion, the spiral travel of the gases, and the progressive increase in combustion area are exclusive features.

These are but a few of the many outstanding advantages of the National Super-Smokeless Boilers. May we give you full details by mail, or through a National Representative.

*When a type of oil burner is used which takes the air in through the front, then the secondary air intake is closed. No changes are necessary in the boiler.

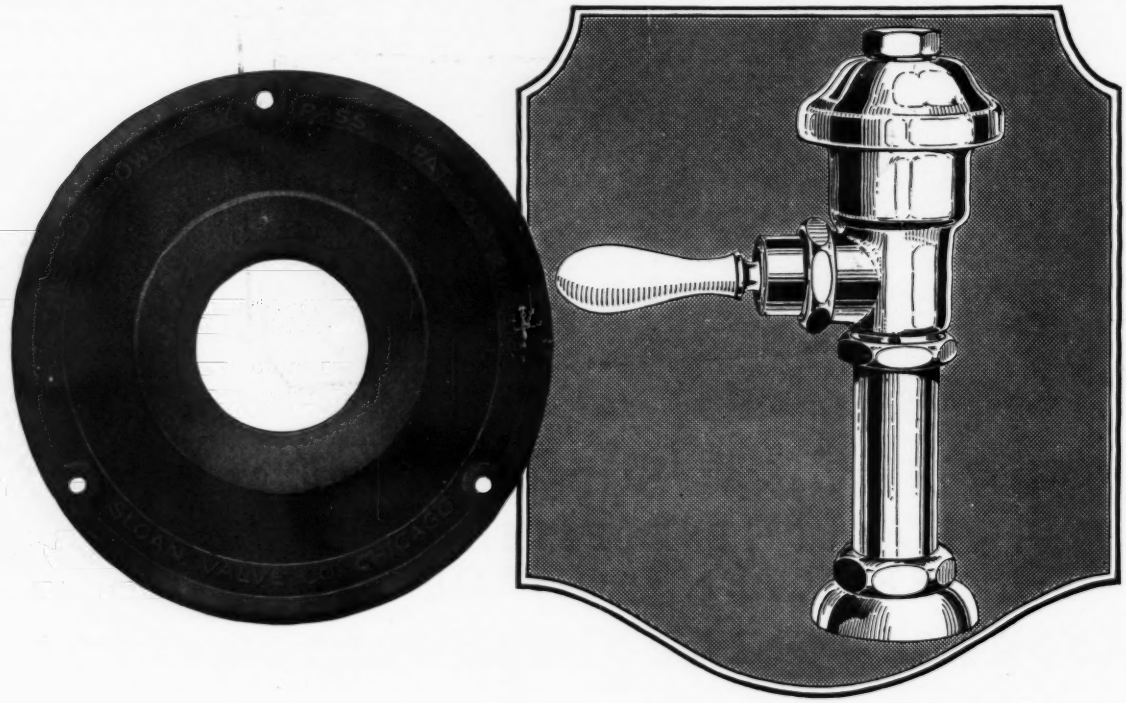
NATIONAL RADIATOR CORPORATION

MANUFACTURER OF RADIATORS AND BOILERS

Ten Plants devoted to National Service through these Branch Offices and Warehouses:

Baltimore, Md.—2600-2622 Frisby St. Boston, Mass.—93-97 Oliver St. Buffalo, N. Y.—259-265 Delaware Ave.
Chicago, Ill.—2445 N. Keeler Ave. Cleveland, Ohio—935 E. 63rd St.
Cincinnati, O.—Spring Grove & Elmira Ave. Indianapolis, Ind.—431 W. Georgia St. Johnstown, Pa.—221 Central Ave.
Louisville, Ky.—1126 W. Breckenridge St. Milwaukee, Wis.—124-130 Jefferson St.
New York, N. Y.—55 W. 42nd St. Omaha, Neb.—108-112 S. Tenth St. Philadelphia, Pa.—121 N. Broad St.
Pittsburgh, Pa.—1509 Arrott Bldg. Richmond, Va.—3032 Norfolk St.
St. Louis, Mo.—1042 Central Industrial Ave. Washington, D. C.—2205 Fifth St., N. E.

AERO NATIONAL *Super-Smokeless* BOILER



...and now the Diaphragm!

DURING the twenty-one years in which Sloan Royal Flush Valves have been on the market, a lot of plumbing contractors have written or said something like this about them:

> *"I've come to the conclusion that Sloan Royal Flush Valves are especially designed for the convenience of the plumber. Breakage is completely eliminated, handling cost is reduced to a minimum, and a lot of labor is saved due to the ease and quickness with which they can be connected to the fixtures."*

Another convenience that plumbers like, is the marking on the under side of the Sloan Diaphragm. This marking, shown in the illustration, makes replacement easy and prevents incorrect installation. Whenever it is necessary to replace a diaphragm in a Sloan Royal Flush Valve, always look for this marking which is plainly stamped on every Sloan Diaphragm.

ROYAL FLUSH VALVES

SLOAN VALVE COMPANY

CHICAGO

Albany, N. Y.	Buffalo, N. Y.	Denver, Colo.	Greensboro, N. C.	Indianapolis, Ind.	Oklahoma City, Okla.	Seattle, Wash.
Atlanta, Ga.	Butte, Mont.	Des Moines, Iowa	Kansas City, Mo.	Minneapolis, Minn.	Philadelphia, Pa.	St. Louis, Mo.
Baltimore, Md.	Cincinnati, Ohio	Detroit, Mich.	Los Angeles, Cal.	Nashville, Tenn.	Pittsburgh, Pa.	Syracuse, N. Y.
Birmingham, Ala	Cleveland, Ohio	Durham, Conn.	Memphis, Tenn.	Newark, N. J.	Richmond, Va.	Tampa, Fla.
Boston, Mass.	Dallas, Tex.	Fort Wayne, Ind.	Miami, Fla.	New Orleans, La.	San Francisco, Cal.	Washington, D. C.
		Grand Rapids, Mich.	Milwaukee, Wis.	New York City, N. Y.		

MARKETS

BUSINESS REPORTS FROM LARGE JOBBING CENTERS

Jobbers Are Moving Good Volumes

THE end of the second week of August seems to have left business in a different state in the various jobbing centers. In New York and the Middle Atlantic areas, according to reports, the seven-day period failed to show the same steady improvement that characterized last week's transactions. Regardless of the irregularity to buying in some sections, business averaged well in the Central West and New England districts, and, taking the country as a whole, it can be safely said that the consumption of plumbing and heating materials is on the increase.

Sales of steel, wrought iron and soil pipe are about average for the season in most sections, and this, coupled with the healthy construction record of the past few months, leads many sellers to believe that activity will be well sustained through the balance of the year. Producers are turning out material at a steady pace and their stocks are such that wholesalers find no difficulty in securing supplies as wanted. The only price change of note since the last report was an approximate 10 per cent reduction by some nipple manufacturers in their quotations to wholesalers.

According to the Department of Commerce, June shipment of enameled sanitary ware as reported by 22 manufacturers comprising practically the entire industry, totaled 427,439 pieces, as compared with 464,-124 pieces in May and 415,885 pieces in June, 1927. June shipments of vitreous-china plumbing fixtures, as reported by 32 manufacturers, were 308,573 pieces, as compared with 322,939 pieces in May and 337,138 in June, 1927.

NEW YORK

Market Lacks Exhiliration—

The New York market during the past 30 days has been a rather peculiar affair, lacking any semblance of the steady improvement that might be expected of it in view of the extensive building program that, according to responsible surveys, has from month to month been taking on gigantic proportions. While the consumption of plumbing and heating materials is without doubt on the increase, the rate of buying has been irregular. A month ago a lull marked trading in the metropolitan New York area, which was followed after a seven day period by an activity in trading that stepped volumes upward somewhat. The third weekly period gave an account of itself which was slightly better than the preceding one, while the fourth week, which this report embodies, is, in comparison, considerably off where sales are involved.

Fixtures, both enameled iron and pottery, are in good demand and have been least affected by the lull in buying. Sales of brass goods since the last 30 day review of this market have not been consistent, but on the whole manufacturers have no complaint because their volumes for the year thus far are good. Steel and wrought iron pipe sales have been low for this time of year, but the first complete week of August witnessed a slight expansion in trading. Brass and soil pipe consumption is good. Demand from contractors for fittings has been steady, but jobbers in general are well stocked, having bought heavily early in June; therefore, manufacturers have as yet not felt fully the extensiveness of activity. Range boiler sales are light compared with those of last year at this time. Boilers and radiators have begun to experience a broader purchasing improvement.

Jobbers are committing themselves for present and immediate future requirements. Manufacturers, in most cases, are producing at a rate that is designed to satisfy demand with a minimum of delay. Prices have been the same as far as changes go until during the past week, when nipple prices were lowered about 10 per cent by a number of makers, and one soil pipe manufacturer advanced his prices 2½ points, putting his printed quotations on a par with those of a number of other makers. One other foundry withdrew its cast pipe sheet.

Soil Pipe

The past few days witnessed practically no change in the rate of demand for soil pipe. Master plumbers are buying in small quantities closely in line with their needs. This is true of wholesalers almost to a like extent, as few if any have stocks that would be considered in any sense broad. A new development of the week occurred when a manufacturer whose sheet was below that of makers now at the high level advanced his prices 2½ points. Another foundry withdrew its sheet. There is no curtailment of deliveries.

Pipe—Brass, Steel and Wrought Iron

If anything, the pipe market was a little quieter during the week covered by this report than it was during the previous seven days. There are, however, a few inquiries out that involve a rather extensive tonnage and these are expected to develop into actual orders in the near future. There is enough construction using brass pipe going forward to give most manufacturers of that commodity a satisfied feeling with sales. It is rather unusual at this time for jobbers generally to buy beyond their close-at-hand needs. Mills are having no difficulty making satis-

factory deliveries. Manufacturers continue on the same price basis that has obtained for some time.

Fittings

The stocks of jobbers, almost without exception, are sufficient to carry them through independently of their manufacturing sources of supply. This applies about equally to brass, cast iron and malleable fittings, but, on the other hand, there are instances where new business has begun to trickle through to makers. Contractors are ordering quantities that embody a fairly good tonnage. While fittings prices from manufacturers were not changed during the week, a number of nipple interests issued new sheets reducing prices to the wholesale trade approximately 10 per cent on other than carton packed. Factories are handling orders promptly.

Enameled Ware

Plumbing contractors are selling enough enameled ware to give trading in this commodity a substantially good complexion as far as volume goes, and there are factories in this market who report satisfactory business. On the other hand, there are some who feel that it is rather moderate. Wholesalers usually are maintaining stocks broad enough to give their trade satisfactory service and at the same time producers are giving a like service to jobbers. Manufacturers announced no change in prices during the week.

Pottery

Stock maintenance by jobbers, who in most cases are supplying master plumbers with good quantities of pottery, is responsible for a healthy volume moving forward from the warehouses of manufacturers. These movements from production sources are usually made promptly. There is a great deal of work in this area that is absorbing a substantial volume of fixtures and the immediate future holds a good amount of business as well. Manufacturers' prices to the wholesale trade are reported as being steady and have not been changed.

Plumbers' Brass Goods

Nothing seemingly developed since the last report was written that would tend to give either cast or tubular brass goods a position better than the moderate rate of selling that obtained during the first days of the month. Master plumbers are unquestionably requiring good quantities of finishing goods and it is simply a question of jobbers with their none too heavy stocks coming into the market for replenishments in small and large numbers that gives business from the producers' standpoint these moderate and active aspects. Factories are shipping satisfactorily. Prices from makers have not been changed since last week's report.

Range Boilers

Manufacturers of range boilers are entering business at about the same rate that plumbing contractors are buying them. This is true because jobbers are running on minimum stocks wherever possible. Master plumbers are installing a fair seasonal quantity of boilers. Manufacturing sources are supplying promptly. The price situation created by the July sheets of makers remains unchanged.

Boilers and Radiators

Reports gathered for the week covering the boiler and radiator market in this section of the country are about in line with those of the preceding seven days. Heating contractors held about evenly to the fairly good quantity of heating equipment they required last week. Most manufacturers feel that the future is particularly promising and seem satisfied with business developments. Prices to the wholesale trade underwent no change. Deliveries are satisfactory, both from factories and manufacturers' local warehouses.

CENTRAL WEST

Good Trading Prevails—

The second week in August, much like the first seven-day period, accounted for a substantial volume of plumbing and heating materials in the Central West district. Practically all over the area, plumbing contractors are busily engaged and those contractors specializing on the installation of heating equipment are finding themselves with considerable less time to spare than a few weeks back, many buildings started in the spring now having reached the stage where boilers and radiators are needed. It is pointed out by some sellers that master plumbers, while calling for finishing materials in greater volume than for roughing-in goods, as is customary at this time of year, are still using a fair amount of the latter type of material. This is taken to indicate by some students of the market, that activity will be well sustained right on through the late months of the year.

During the week a number of manufacturers lowered their prices to jobbers on black and galvanized nipples approximately 10 per cent below the sheets issued in April. Outside of this, no price changes of any note took place in the Chicago district during the past week. Production is being maintained at a fairly lively pace by most producers, and wholesalers report little difficulty in securing supplies as wanted. Inability to make immediate shipments is still attributed to some tubular brass makers, however. Wholesalers state that their re-sale prices are a trifle firmer than earlier in the year, but complaints are still heard from some regarding collections.

Soil Pipe

Reports from various manufacturers' representatives in the Chicago area are indicative of a fairly good prevailing demand for soil pipe. It is reported, however, that the majority of wholesalers are in possession of fairly good-sized stocks of soil pipe, and, therefore, are not finding it necessary to come into the market for large additional quantities. The price sheets of different foundries continue to carry a 2½ point spread, and some reports indicate that foundry quotations are none too strong. Some makers are said to be in a better position to deliver pipe than others.

Pipe—Steel and Wrought Iron

Demand upon steel pipe mills continued at close to the same pace as the week previous, according to representatives in this district. Mills in this district are reported operating at a 70 to 75 per cent production schedule and, as a consequence, no delays in deliveries are encountered. The position of wrought iron pipe also showed little change over the average seasonal tonnage that was moved during the previously elapsed seven days. In general, makers report a tonnage for the year so far that compares closely with that for the corresponding period of 1927. Wrought iron pipe is leaving mills promptly. Mills have not changed prices.

Fittings

Fittings manufacturers in general appear quite well satisfied with the amount of business that is reaching them. Wholesalers, it is reported, although holding good stocks, are finding it necessary to replenish frequently following withdrawals by the trade. Shipments are leaving factories promptly. Manufacturers' prices are reported firm at existing sheets and unchanged.

Enameled Ware

Jobbers state that a good seasonal volume of enameled ware is moving out of their stocks, contractors making a steady call for ware from day to day. Manufacturers'

totals are holding up well, with frequent replenishments by wholesalers, the latter ordinarily buying for about 30 days ahead. Factory stocks insure early deliveries. Manufacturers have announced no change in their published prices.

Pottery

The pottery market continued to show about the same activity as during the previous week. The trade is calling for material that averages well over a weekly period, and, as a result, potters are shipping steadily to jobbers. A good amount of special ware is being assembled for use in large projects, and, besides the seasonal call for staples, there is a good movement reported of colored ware. Orders for staples are leaving potteries on schedule. Prices are unchanged.

Plumbers' Brass Goods

Neither cast nor tubular brass goods manufacturers reported any change in their published prices in the past week, and while shipments are ordinarily leaving factories on time, some instances of delays on tubular items are reported. Demand for both types continued at a pace satisfactory to makers, most of this business scheduled to replenish material taken from wholesalers' stocks by contractors. Makers' on the average, find little difference in their volumes to date in comparison with the same period of 1927.

Range Boilers

Wholesalers are moving a fair seasonal volume of range boilers, and while many distributors are well supplied, still manufacturers are experiencing a fair demand. There are good-sized stocks at factories and orders are not being delayed at sources of manufacture. Factory prices have not changed.

Boilers and Radiators

Boiler and radiator manufacturers announced no change in their published quotations during the week, and it is reported that prompt delivery service is available at factories and makers' warehouses. Heating contractors are continuing to specify more freely on orders placed earlier, as additional projects reach the heating installation stage.

MIDDLE ATLANTIC

Demand Fails to Show Gain—

Demand in the Middle Atlantic territory for plumbing and heating materials during the first full week of August did not add anything to its position by bettering the total volume of business generally. Contractors undoubtedly did, with their buying, add a little to the trading activity; but on the other hand, many of the sellers for manufacturers reported that jobbers, in taking in sufficient materials to keep their holdings at a satisfactory level, did not materially increase their sales. Business from the standpoint of a number of wholesalers, in giving a better account of itself during the second quarter than in the first, did not approach an aggregate great enough to make up the loss the first three months sustained over the same period in 1927. It is the opinion of some students of market conditions that, while the year's volume in some quarters is not up to that of last year, prices are in many instances more commensurate, so that better profits are made.

Offsetting the above, the F. W. Dodge Corporation's review of building gives July a record for contracts awarded, placing the month 16 per cent ahead of July, 1927. The awards amounted to well over $62,000,000, but were 19 per cent less than in June, 1928. Over $25,000,000 of the sum involved residential construction; nearly $16,000,000 was for public works and utilities, and about $8,500,000 for commercial building projects. This record July played its part in putting the first seven months of this year 13 per cent ahead of the like 1927 period in the matter of monetary values involved in construction contracts let.

With few if any exceptions, urgent deliveries are obtainable from manufacturing sources without difficulty. The only price changes noted had to do with nipples, which in the case of some manufacturers went off approximately 10 per cent under sheets published during April, and the advance of 2½ points in soil pipe by one manufacturer whose prices were lower than those of some other makers. Another cast iron pipe foundry withdrew its sheets.

Soil Pipe

Jobbers are ordering this commodity in about the same proportion as their sales. The requirements of master plumbers are varied, but aggregate a rather good tonnage. Foundries are delivering promptly. One foundry issued a new sheet indicating a 2½ point advance in its prices which were lower than those of most manufacturers. Another maker withdrew his sheet toward the latter part of the week.

Pipe—Brass, Steel and Wrought Iron

There was no revival of early July business reported for the early days of this month. Only here and there are orders trickling in from jobbers who are broadening their holdings above a threatened shortage point. A lack of sustained buying failed to give the week's activity in either brass, steel or wrought iron pipe a volume beyond that of the previous seven days. Few jobs were placed of sufficient dimensions to perceptibly broaden pipe sales. No reports contrary to the good delivery service which is obtainable were heard. Manufacturers have made no announcement of change in prices.

Fittings

Some wholesalers in the Middle Atlantic territory feel that the price changes effected by most manufacturers in June have put the market on a sounder basis. Contractors are requiring fittings at a rate that is considered rather good. Jobbers' bins are in a fairly substantial condition as far as stock is concerned. The new business manufacturers entered during the week was not considered extensive. Shipments usually are made on time. Aside from the lowering of prices on black and galvanized nipples several points by some makers, no changes in prices were effected.

Enameled Ware

A fairly good seasonal movement of enameled ware was reported by two manufacturers, but several others indicated that buying was rather quiet during the seven-day period. Jobbers gave the market a slightly better tone where buying interest on the part of master plumbers is concerned, although no orders of outstanding dimensions were placed during the first ten days of the month. Deliveries can be had promptly. Manufacturers announced no change in prices.

Pottery

Both staple and special pottery pieces are moving about as they were when the previous weekly analysis was made, except that any possible change that may have been injected into business would be toward lifting activity above the lagging tendency that has marked buying. Potters are booking some business for future delivery, but in the main their sales are for immediate delivery. Jobbers have not shown any indications of building stocks beyond the point they consider safe against shortage. Factory shipments are forwarded on time. Manufacturers have made no change in prices.

Plumbers' Brass Goods

Buyers, according to representatives of factories making tubular and cast brass, were a little more receptive to solicitations during the second week of the month than they were earlier. This was because of the fact that master plumbers were in the market more extensively for finishing goods and, as a consequence, jobbing houses found it necessary to supplement the stocks on their shelves. Orders, though, for the most part, were not extensive from the standpoint of the number of pieces involved. There were no price changes effected, but reports are insistent that quotations are steady. Prompt shipments are obtainable from factories.

Range Boilers

Bookings by manufacturers of range boilers were far from being seasonally heavy. Master plumbers did not buy extensively and jobbers were able to supply the demand from their rather meager holdings. The latter are taking in range boilers about as they need them. Factories are making shipments as orders indicate.

The Stock Market

Quotations furnished by Frazier Jelke & Co., Chicago

Par Value	1928 High	1928 Low	Quotations of August 13, 1928	*	Bid	Asked	Last
25	152¾	130⅛	American Radiator Co., com.	A	146¾	147¼	147
100	150	142	American Radiator Co., pfd.	A	149½	150	149¾
50	74⅛	53¾	Anaconda Copper Mining Co.	A	65½	66	65¾
NP	49	27½	Brunswick-Balke-Collender Co.	A	44¼	44¾	44½
NP	117½	90½	A. M. Byers Co., com.	A & F	93	93½	93¼
100	114½	108¾	A. M. Byers Co., pfd.	A & F	114¼	114¾	114½
100	140	128	Century Electric Co., com.	G	128	133	128
100	106	101	Century Electric Co., pfd.	G	102	104	102
50	6	3	Chicago Nipple Mfg. Co., "A"	B	2½	3½	3
50	3	2	Chicago Nipple Mfg. Co., "B"	B	1½	2	2
25	47½	45	Crane Company, com.	C	45	46	45½
100	121¾	118¾	Crane Company, pfd.	C	120	123	122
100	94	67	Detroit Brass & Malleable Works	D	67	73	70
100	110	91	The John Douglas Co., pfd.	I	95	100	105
20	23	17	Eagle-Picher Lead Co.	I	17	18	17¼
NP	50	32½	Fairbanks, Morse & Co., com.	A	42½	43½	43
100	111½	34	Fairbanks, Morse & Co., pfd.	A	111¼	112	111½
NP	134	96⅛	Johns-Manville Corp.	B	121⅞	122½	121⅞
100	160	150	Jones & Laughlin, com.	F	155	159	157
100	123	120	Jones & Laughlin, pfd.	F	121	123	122
10	28	20	Michigan Copper & Brass Co.	D	27½	28½	28
NP	45	30	Minneapolis-Honeywell Regulator Co.	B	37	38	37½
NP	38½	31½	Modine Mfg. Co.	C	35½	36	35⅞
NP	42	32	F. E. Myers & Bro. Co.	H	35¼	36	35½
100	136	116	National Lead Co., com.	A	122	123	123
100	147¼	139	National Lead Co., pfd.	A	143	145	144
NP	40⅜	32	National Radiator Corp.	B	20	22	21
100	108	104	Ohio Brass Co., pfd.	H	106½	108	105½
NP	100	88¾	Ohio Brass Co., "B"	H	88¾	89½	88¾
100	101	100	Penberthy Injector Co., pfd.	D	100	102	100
25	26	3	Pierce, B. & P. Mfg. Corp., com.	U	4	8	5
100	95	20	Pierce, B. & P. Mfg. Corp., pfd.	U	45	58	43
NP	27	18	Richmond Radiator Co., com.	B	17½	19	18
NP	40⅞	36	Richmond Radiator Co., pfd.	B	34	37	35
100	53	40	Scovill Mfg. Co.	U	52	54	53
NP	42¼	33¼	Standard San. Mfg. Co., com.	A & F	36	38	36½
100	125	115	Standard San. Mfg. Co., pfd.	A & F	117	119	118
100	55	45	Trenton Potteries Co., com.	U	45	50	48
100	95	95	Trenton Potteries Co., pfd.	U	95		95
100	300	190⅓	U. S. Cast Iron P. & F. Co., com.	A	241	243	242
100	137	115	U. S. Cast Iron P. & F. Co., pfd.	A	124	126	126
NP	46	38	U. S. Radiator Corp., com.	D	39	41	40
100	106	100	U. S. Radiator Corp., pfd.	D	100	101	101
100	61¼	27	U. S. Rubber Co., com.	A	33	35	34
100	109⅜	55	U. S. Rubber Co., pfd.	A	61	63	62
100	154	132⅜	U. S. Steel Corp., com.	A	140	142	141
100	174½	138	U. S. Steel Corp., pfd.	A	140	143	141
NP	19	15	Walworth Company	A	15	16	15¾
NP	10	6½	Williams Oil-O-Matic Htg. Corp.	C	8	10	9
NP	106⅜	83½	Youngstown Sheet & Tube Co.	A	87½	89	88

*Where listed—

A—New York Stock Exchange
B—New York Curb Exchange
C—Chicago Stock Exchange
D—Detroit Stock Exchange
E—Boston Stock Exchange
F—Pittsburgh Stock Exchange
G—St. Louis Stock Exchange
H—Cleveland Stock Exchange
I—Cincinnati Stock Exchange
U—Unlisted Stocks

The Metal Market

	Aug. 14	Average July, 1928	Average May, 1928	Average 1927
PIG IRON—				
No. 2 foundry, Chicago, Furnace	$17.50	$17.60	$18.20	$19.66
PLATES AND SHEETS—				
Steel boiler plates, Pittsburgh, per lb.	1.85c	1.85c	1.85c	1.83c
Blue annealed sheets, No. 10, Pittsburgh, per lb.	1.90c	2.00c	2.00c	2.20c
Black sheets, No. 24, Pittsburgh, per lb.	2.60c	2.65c	2.75c	2.91c
TIN—				
Straits tin	48½c			
LEAD—				
Chicago	6.10c			

The Old Metal Market
Dealers' Buying Prices

	Per lb.		Per lb.
Aluminum clippings	18 c	Copper, light	9½c
Block tin	44½c	Copper, uncrucibled wire	11½c
Brass, light	7 c	Faucets and valves	9 c
Brass, heavy mixed	7½c	Lead, heavy	5.50c
Brass, red	10 c	Solder joints	9 c
Copper, crucible	12 c		

NOTE: Prices are those quoted on Tuesday of this week.

Boilers and Radiators

No especially good business is enjoyed by manufacturers from this territory, but on the other hand at least some of them feel that their bookings are better than seasonally fair. Activity where heating contractors are concerned is increasing rather steadily. Jobbers' stocks generally are not heavy and at least no little dependence is placed on the ability of producers to ship promptly. No price changes were announced by manufacturers.

NEW ENGLAND

Consumption Demands Are Extended—

The past seven-day period witnessed the continuance, in even better proportions, of the active demand which has prevailed during the past month or more on the part of both plumbing contractors and wholesalers. Some of the latter especially have seen their sales volumes mount from a state of depression to a point where they can easily state that receipts exceed those of the corresponding period of last year. Both plumbing and heating contractors, if activities in the various New England states are averaged, find that their services are in increased demand and that the large early year construction program has developed to such a point that lettings of contracts previously figured necessitate the maintenance at all times of good working crews.

As stated in the report previously rendered, residential work accounts in large measure for the increased movements of materials into this section. Potters, enameled ware manufacturers and producers of brass goods report continuing good shipments of high grade pieces for the better class of home construction, and also more frequent requests for deliveries on previously specified orders for larger operations. Most makers reported satisfactory volumes for the month of July. In the majority of cases these were somewhat ahead of the 1927 July records.

Shipments from sources, while not quite so easy as formerly, are being effected in sufficiently prompt manner as to satisfy distributors.

(Continued on Page 85)

Gas Refrigeration

(Continued from Page 24)

ture is thus lowered. The Chinese, more than two thousand years ago, understood and put this principle to extensive use.

We are all more or less familiar with the family ice cream freezer, in which the cream is surrounded by a mixture of crushed ice and salt. According to M. A. Pennington, director of the household bureau, National Association of Ice Industries, the most satisfactory temperatures for the freezing of ice cream range from about 16 degrees F. to about 6 degrees F. These temperatures are obtained by the use of from 12 to 17 per cent of salt by weight, which is from 12 to 1 to 8 to 1 parts by volume.

Bulletin No. 98, U. S. Department of Agriculture, records the following temperatures obtained by mixing various quantities of salt with ice:

Degrees Fahr.	Pct. Salt	Degrees Fahr.	Pct. Salt
32.0	0	11.0	15
27.0	5	1.5	20
20.0	10	10.0	25

The average temperature that may be obtained by mixtures of salt and crushed ice is shown graphically by Fig. 2.

Salts other than sodium chloride (ordinary table salt) may be used very readily in the production of low temperature solutions. For example.

1 part potassium chloride plus 3 parts of snow or ice produces a temperature of 12 degrees F.

1 part ammonium chloride plus 4 parts of snow or ice produces a temperature of 5 degrees F.

1 part of ammonium nitrate plus 2 parts of snow or ice produces a temperature of 2 degrees F.

1½ parts of calcium chloride crystals plus 1 part of snow or ice produces a temperature of 58 degrees below zero!

In all of the above mentioned freezing mixtures the measurements indicated are parts by weight.

A mixture of eight parts by weight of sodium sulfate (ordinary Glauber salts) and five parts by weight of diluted hydrochloric acid (1 part water and 1 part acid) is also an interesting freezing mixture. Upon pouring the diluted acid upon the salt crystals a chemical reaction takes place forming sodium chloride and sulphuric acid. If water, contained in a small vessel, is placed in this solution it will be converted into ice in from five to ten minutes.

However interesting and practical the use of freezing mixtures may be they are too expensive for universal use. The practical application of freezing mixtures is confined to household ice cream freezers and campers' refrigerators. They are also used to a limited extent in laboratory operations where a small amount of refrigeration is desired. The salts may be reclaimed by recrystallization.

Countless experiments have established the fact that a certain definite amount of heat is required to reduce to its liquid state, one pound of a solid, which is already at its melting temperature. This quantity of heat, dealt most conveniently with as British thermal units (B.t.u.), is called the "latent heat of melting" or "the latent heat of fusion."

The Mathematics of Refrigeration

The amount of heat required to melt any given weight of a substance is found by solving the following equation: $Q=W[S(Tm-T)+Lf]$, where Q=Heat required, in B. t. u.; W=weight of substance to be melted, in pounds;

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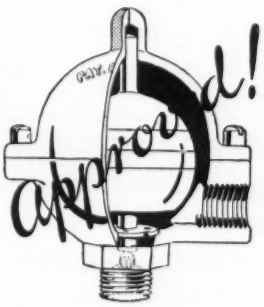
When pressures mount by leaps and bounds

RISING temperatures in a "closed" system cause pressures to mount by leaps and bounds to dangerous heights. In a domestic water supply, neglect to turn off a gas heater may lead to disastrous explosions—unless a relief outlet be provided.

The safest and simplest way of protecting such systems is by the use of Red Top Relief Valves. Model No. 1 may be set to automatically relieve at 50, 75, 100 and 130 Lbs. Pressure in the system opens the valve, gravity closes it after the relief has been obtained. Red Tops are approved by the Underwriters' Laboratories, Inc.



Sectional view, Model No. 1 for domestic hot water supply systems

Neptune Meter Co.
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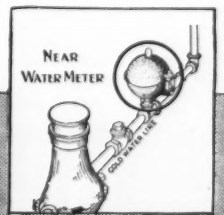
Branch Offices in Principal Cities



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BEAVER
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Tm=temperature at which substance melts, degrees F.; T=initial temperature of substance, degrees F.; S=Mean specific heat of the substance between Tm and T; Lf=Latent heat of melting, B. t. u. per pound.

For example: What quantity of heat is required to melt a standard 300 pound block of ice having a temperature of 32 degrees F?

Using the above equation we have:

$Q=300\times([0.504\times(32-32)]+143.33)$; or,

Q=43,000 B. t. u. approximately.

In solving this problem the mean specific heat of ice between 32 degrees F. and 212 degrees F. and at constant atmospheric pressure was taken as having the approximate value of 0.504 and the latent heat of ice being 143.33 B. t. u. per pound.

Could the heat of natural gas (1,000 B. t. u. per cubic foot) be absorbed by this block of ice with 100 per cent efficiency it would require just about 43 cubic feet to melt it completely.

Phenomena of Latent Heat

Yet, the resultant liquid would still be at the temperature of the ice at the start, i. e., 32 degrees F. The heat has not, however, been destroyed or lost but is locked up in the water as latent heat. Freezing this same water will release the absorbed heat so that it can be taken up by some other object or substance.

When the farmer places tubs of water in his fruit or vegetable cellar he makes use of this curious phenomenon of latent heat. As the water becomes colder and finally freezes the heat therein is released and taken up by the air and vegetables in the cellar.

APPLICATION TO HOUSEHOLD REFRIGERATION

IF, instead of melting this block of ice by gas heat we lock it up in a tightly closed refrigerator together with foodstuffs such as milk, fruits, vegetables, etc., we find, after a time, that the ice has melted. The foodstuffs will have become much colder. The foodstuffs have, in this case, provided the heat necessary to melt the ice. In other words, heat has been extracted from the foodstuffs and absorbed by the water which was, at the beginning, a block of ice.

The absorption of heat is not a property peculiar to ice alone. It is indeed difficult to believe that iron in passing from the solid state to the dazzling, white hot molten mass is a cooling process that refrigerates the melting-furnace to an extent that is truly amazing.

To the uninitiated it seems paradoxical to speak of heat in a treatise on refrigeration, yet, in refrigeration, we deal with heat exclusively. "Cold" is merely a relative term indicating—roughly—the amount of heat contained in the substance under consideration.

While domestic refrigeration is most commonly accomplished at the present time by the melting of ice, that produced by surface evaporation of a liquid dates back to the time of prehistoric man, and, as we shall presently see, it will undoubtedly be the most important principle of future refrigeration processes and devices.

We have learned that, to change a solid to a liquid, heat must be applied. This is also true if we wish to change a liquid to a gas. The process involved is popularly called evaporation.

The Molecular Theory of Heat

This brings us directly to the question, "What is heat?" Lucretius, the famous Latin poet, who lived nearly two thousand years ago, pointed out that everything, no matter whether it was glass, wood, stone, oil, water, etc., was composed of uncountable small particles, too minute to be seen individually, and in rapid motion. While the scientists of the present day accept the theory that all

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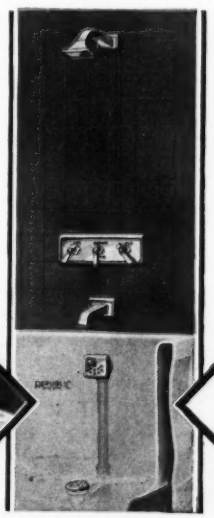
The Republic Integral Stop Valve is fully covered by U. S. Letters Patent No. 1556406, October 6, 1925. Patent fully covers the use of an escutcheon or housing for main valve body and supplemental valve.



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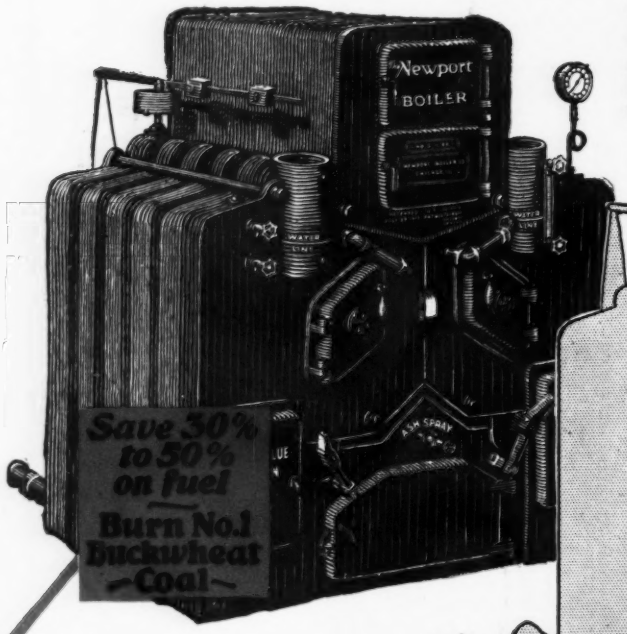

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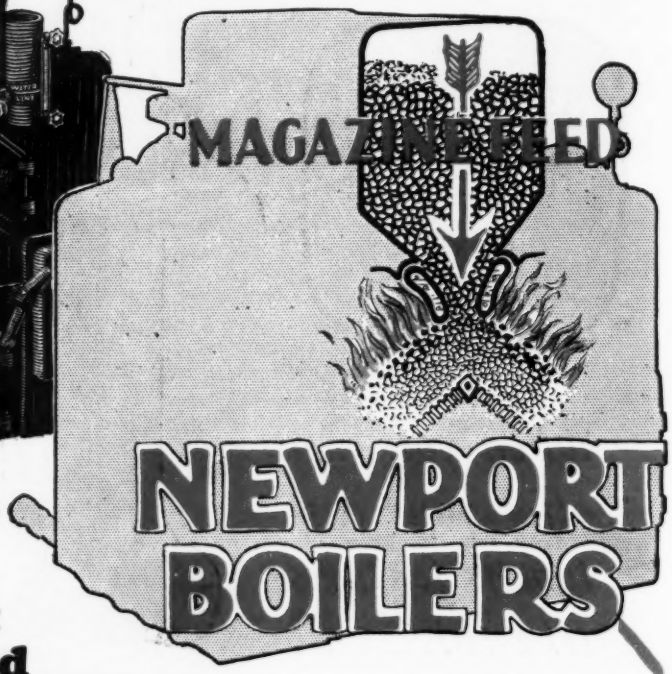

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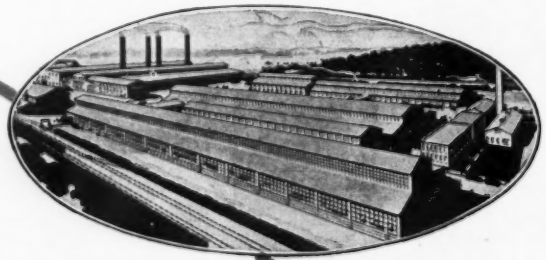
Other contractors are using our suggestions to get more contracts at a better profit. Write us for complete information, also for copy of our book, "The Practice of Scientific Heating."



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matter is composed of incredibly small particles which they call molecules and their smaller subdivisions, atoms and electrons, the conception of matter held by Lucretius has since undergone many important revisions.

We have experimental proof that the state of matter whether solid, liquid, or gaseous is determined by the rapidity and extent of the motion of the molecules which compose it. Some force, as yet not fully determined, holds these molecules together. They are held most tightly together when the substance is in the solid state and to a lesser extent when the substance has been reduced to a liquid or gaseous state. The more rapidly these molecules vibrate the easier it becomes for them to break the cohesive bond that ties them to their fellow molecules and, in this way, the change of state from solid to liquid or from liquid to gas is accomplished. It is apparent then that rapidity of motion of the molecules determines whether a certain substance is solid, liquid or gaseous. The speeds of some of the molecules have been measured. A hydrogen molecule at 32 degrees F. travels at the terrific rate of 4,000 miles per hour, while a mercury molecule travels at about one-tenth of this speed or at the rate of 400 miles per hour.

Heat is not a substance, but really a condition of matter—in other words, heat may be considered as energy, i. e., molecules in vibration.

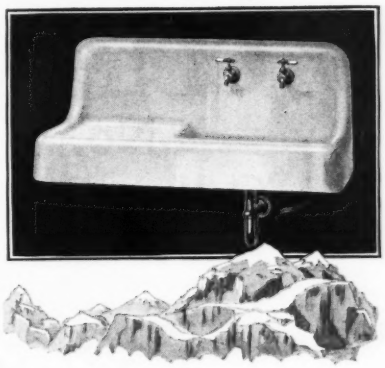
When water, for instance, evaporates from an uncovered dish, the molecules that escape from the surface have vastly more energy than those still in the dish. If this dish were placed in an air-tight box or room the impulse given the relatively slow moving molecules of the liquid by the heat energy in the box or room is great enough to break the cohesive bond holding some of them to the liquid state at the surface and they fly off into space as vapor. Eventually this room will contain so many freed water molecules that many countless hordes of these madly dashing particles again come in contact with the water in the dish and are recaptured as rapidly as thousands of others escape. If the heat energy supplied to the water is continuous the water will continue to become hotter, indicating an increase in molecular vibration. This is the action that goes on in the familiar pressure cooker and also in the waterless cooking method that is enjoying the approbation of present-day cooking experts.

If, on the other hand, provision is made for removing the gaseous molecules from the air of this room, the water in the dish will soon have disappeared in the form of invisible gaseous molecules or, as we are pleased to term it, "have evaporated." Since the molecules leaving the surface of the water in the dish contain the greater part of the available energy, it is apparent that the average energy of the remaining water steadily falls as evaporation proceeds. The result is that the remaining water becomes colder and colder until it finally freezes.

The Marvellous Cooling Mechanism of the Human Body

A good every-day example of cooling by evaporation is provided by the phenomena of perspiration. In order that the body may carry on its numerous chemical and vital processes, the temperature must be maintained at 98.6 degrees F. Exercise causes the bodily temperature to rise rapidly, and immediately the sweat glands, ever watchful and on guard, pour forth their watery secretions. This secretion, commonly called sweat, evaporates and, in doing so, absorbs the excess heat. In this way the body heat is reduced to normal.

Some substances evaporate faster than others. Surgeons sometimes use a sulfuric ether or ethyl chloride spray to cause local anaesthesia. These liquids, when sprayed on



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the skin, evaporate so rapidly that the part may become severely frostbitten if great care is not exercised. Fig. 3 illustrates a method of producing ice on a small scale by the evaporation of ether, ethyl chloride, or methyl chloride. Fig. 4 shows how ice may be instantaneously formed by pouring water into methyl chloride. The water literally "explodes" into ice.

Early Applications of Evaporation for Cooling

Even before the dawn of modern civilization the phenomenon of evaporation was effectively utilized to cool drinking water and food in hot, dry countries. Butter and perishable foods were wrapped in a damp cloth and placed in a spot where the air circulated freely. Drinking water was, and in fact still is, placed in porous canvas bags which are hung up under a tree, or other sun shaded spot, but exposed to the hot, dry air. The hotter and drier the wind the cooler becomes the water. The water which seeps through the canvas bag rapidly evaporates and thus cools the remaining water. Fig. No. 5 illustrates a device used for cooling water and food by evaporation. In India, in the Sahara Desert, and in other localities with a hot, dry atmosphere, ice can actually be very readily made without machinery or processes other than that provided by Mother Nature's servant, evaporation.

Beds, dug to a depth of about two feet, are filled with loose straw to within about six inches of the surface of the ground. Porous earthenware dishes of water are placed on the straw and soon the hot and very dry air blowing over this primitive ice-plant lowers the temperature of the water to the freezing point. The success of this method of ice production is due principally to the extremely rapid evaporation of water from the dishes and to the action of the straw in preventing the absorption of ground heat by the water containers.

Fig. 6 illustrates the similarity existing between a steam boiler and a simple type of evaporation refrigerator. Here water is evaporated by heat supplied by coal or other fuel while in the refrigerator, the refrigerant—in this case, ammonia—is evaporated by heat supplied by foodstuffs. While the evaporation of water at atmospheric pressures practically ceases at temperatures below zero degrees Fahrenheit, ammonia presents a rather startling appearance by boiling and, of course, evaporating, at the frigid temperature of 28 degrees below zero Fahrenheit! Other refrigerants used in present-day refrigeration machines were determined by the U. S. Bureau of Standards to have boiling points as follows: Ammonia, —28.03 degrees F.; Sulphur dioxide, +14.0 degrees F.; Methyl chloride, —10.65 degrees F.; Ethyl chloride, +54.55 degrees F.; Butane, +31.0 degrees F.; Carbon dioxide, —110.5 degrees F.

Ammonia is the most extensively used refrigerant. According to H. B. Hull, the use of the various refrigerants in the United States by various types of refrigerating plants may be tabulated as follows:

Refrigerants	Commercial plants	Marine Installations	Household Machines
Ammonia (compression)	Extensive	Limited	Very limited
Sulphur dioxide	None	Very limited	Extensive
Methylchloride	None	Very limited	Limited
Ethyl chloride	None	Very limited	Very limited
Carbon dioxide	Limited	Extensive	Very limited
Air	None	Very limited	Very limited
Ammonia (absorption)	Limited	None	Limited
Isobutane	None	None	Limited

(To be continued)

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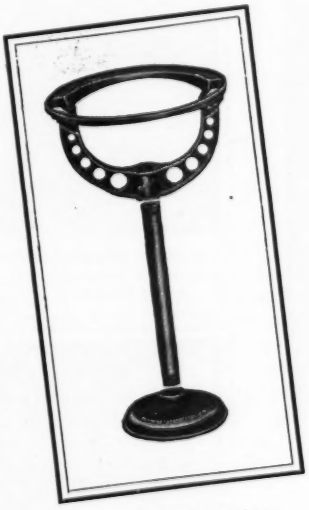

A nipple, 13¾" long, makes stand 22" high.

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NIPPLE — 1" Pipe — 8¼" less than height desired.

Plain Black :: Galvanized
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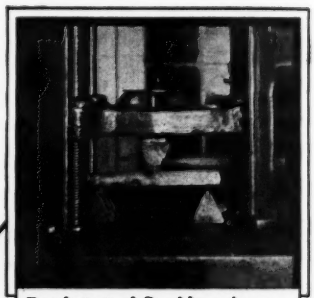
FOUNDRY & MANUFACTURING CO.
RICHMOND, VIRGINIA

ACCURACY *and Strength*

Strength in Stockham Fittings, far in excess of probable strain, results from accuracy of manufacture. Accuracy in selection of raw materials by analyses by expert metallurgists, accurate mixture of the iron, accurate castings, accurate tapping, accurate finish, accurate inspection and tests. Consistent accuracy, in all details of manufacture, produces Stockham Fittings that go on easily, screw up tight and do not leak.

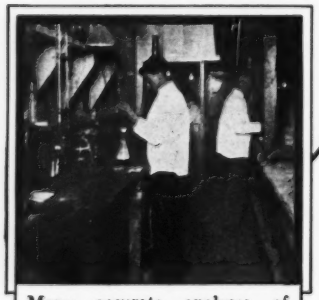
All Stockham Fittings are accurately made to American Standard Dimensions



Break test of Stockham irons—accurately assuring uniformity of strength

Stockham Working patterns accurate to 1/1000 of an inch of standards

Accurate temperature control of malleable heat-treatment assures strong Stockham Malleables



Many accurate analyses of Stockham metal cause uniform strength

A severe test of a Stockham fitting for strength, where the fitting did not break

Ask your jobber for Stockham Fittings. His stocks of Stockham Fittings and of all the materials you need are maintained for your best service. The jobber serves you with the greatest economy and speed. Send for our vest-pocket catalogue of fittings.

STOCKHAM PIPE & FITTINGS CO.
BIRMINGHAM, ALA.

BOSTON NEW YORK *Warehouses* CHICAGO LOS ANGELES

CAST IRON
Screwed Flanged Drainage

MALLEABLE
Standard Extra Heavy
Oil Country Malleable

ELECTRIC CAST STEEL
Flanged Screwed

STOCKHAM FITTINGS

THIS WEEK

AMONG MANUFACTURERS, WHOLESALERS AND SALESMEN

TO HOLD FALL MEETING IN OCTOBER

An announcement coming from the office of Frank S. Hanley, secretary of the Eastern Supply Association, indicated that the fall meetings of that organization are to be held on October 10 and 11 at the Hotel Astor, New York City.

MERGER INCLUDES ROBERTSHAW THERMOSTAT COMPANY

A new operating company known as Reynolds Metals Company, of Brooklyn, N. Y., has been organized to conduct the businesses of United States Foil Co. of Louisville, Ky.; Beech-Nut Foil Co. of Canajoharie, N. Y., and Robertshaw Thermostat Company of Youngwood, Pa.

The Robertshaw company becomes a division of Reynolds Metals Company, the merger resulting in no change of name or personnel, under which its business will be continued as in the past.

The Reynolds Metals Company may also in the near future acquire control of the Fulton Company of Knoxville, Tenn., the directors of the latter company having recommended to the stockholders that the offer of the Reynolds Metals Company be accepted.

BUYS SITE FOR NEW PLANT

Official announcement has just been made by J. P. Morley, president of the Bastian-Morley Co., La Porte, Ind., that his company has purchased the site for a Los Angeles manufacturing branch and that as soon as the necessary buildings can be constructed the manufacture of the line of gas and electric automatic storage water heaters which the company has been manufacturing in the central west for the past sixteen years will be undertaken in Los Angeles. Mr. Morley said that the increasing demand in the far western territory for storage water heaters of the type made by the company was the primary reason it had been decided to institute the branch factory in Los Angeles.

The site recently purchased by the company is located on the south side of East Fifty-ninth street, midway between Central avenue and Avalon boulevard. President Morley said the buildings would be of brick and steel and that S. J. Lonergan, vice-president of the company in charge of production at the main plant at La Porte, Ind., would be in charge of construction.

OPEN NEW SUPPLY HOUSE IN PHILADELPHIA

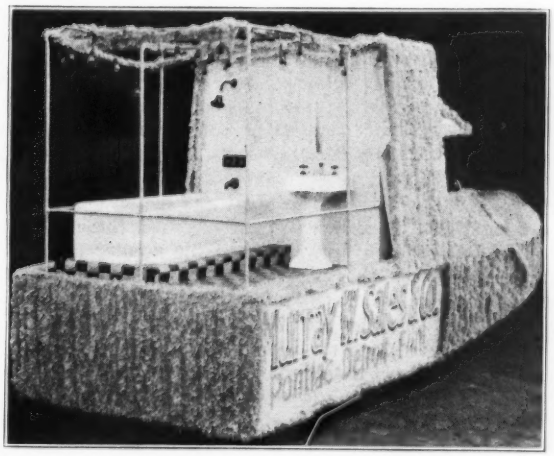
A new wholesale house dealing in plumbing and heating materials was recently opened at 1632 Meadow street, Philadelphia, Pa., with the name of Genner Bros. The establishment is under the proprietorship of Hugh K., Thomas M. and James C. Genner, all prominent in the metropolitan Philadelphia trade, each having been identified with a prominent supply house for many years.

The first was with the Haines, Jones & Cadbury Co. for some years and later with Bridgman Co., while for the past 17 years the two last named of the brothers were with Fleck Bros.

HAS UNIQUE FLOAT IN PARADE

Two hundred floats, requiring two and a half hours to pass a given point, took part in the Spirit of Progress parade held recently in Pontiac, Mich. One of the floats which caused the most attention was that of Murray W. Sales & Co., wholesalers of Detroit, Mich.

The float, of which a picture is shown herewith, contained a complete bathroom with shower. Two colored boys were seated in the tub, under a constant stream of water from the shower, the entire float being lighted brilliantly by twenty-five electric bulbs.



Murray W. Sales & Co., float in Pontiac parade

The results mentioned above were secured by concealing an automatic electric plant back of the driver's cab. This unit generated electricity for the lights, and also for the motor of an electric cellar drainer, which was connected with the waste of the bathtub and also to the shower head. About twenty gallons of water were poured into the tub, and the cellar drainer pumped the water up into the shower head, from which it fell back into the tub and repeated the process.

OPENS WHOLESALE BRANCH IN HAMMOND

The Inland Supply Co., Chicago, recently opened a branch at Hammond, Ind. The new branch is located at 292 Indiana avenue in that city, and will be in charge of Mervin F. Davis, formerly of the Champaign, Ill., branch of the company. Assisting Mr. Davis will be W. E. Russell, a former master plumber of Hammond.

MOVES TO NEW LOCATION

Frank Bros. Mfg. Co., Inc., New York City, has moved its business to 476-478 Broome street, that city. The new location affords the firm 25,000 square feet of floor space in which to conduct its plumbing specialty business. The business is under the direction of Louis Frank and Samuel Wagner.

Turnovers for Profits

A bulletin issued under date of August 11 by the Eastern Supply Association sets forth, "How Turnovers Make Profits in the Supply Business." The facts indicated in the bulletin are a resume of the report submitted by the New York University Bureau of Business Research dealing with the costs of conducting business and profits of the members of the Eastern Supply Association. The report says:

"The bureau finds that a representative group of Eastern Supply wholesalers in 1927 showed stock turns which ranged from 2.2 times to 19 times, the latter figure, however, is abnormal, the largest number of stock turns that may be called normal being 10. The middle figure—the one standing half way between the highest and the lowest —was 4.9. That is, the supply wholesaler who turned his stock over 4.9 times in the year showed a medium performance. The most common number of stock turnovers was between 4 and 4.5.

"On the whole, this represents a slight gain over 1926, though the difference was not great.

"In general, it is ordinarily desirable to have the largest possible number of stock turnovers. Other things being equal, a supply wholesaler who turns his stock over more times than his competitor will make more money. There are, however, some exceptions to this general statement. (1) If prices are not right and materials are sold on a basis that does not cover all expenses, there is obviously a loss on each unit sold, and the greater the number of turnovers, the greater the loss. A rapid turnover cannot turn a loss per unit of goods sold into a total profit. (2) Also the number of turnovers may be increased by overselling the retailer, or by selling to retailers whose credit is not good. In this case, the sales are not really sales, and losses from bad debts may result rather than profits. (3) Again, increased turnovers may be secured at too great a cost. It does not pay to go after turnovers regardless of expense, and if advertising or delivery expenses are unduly increased, the gain in turnovers may be offset by the increase in cost.

"If, however, the supply wholesaler considers these matters and sells at right prices to good customers, using economical methods of getting business and delivering the goods, a large number of turnovers is the best thing in the world for business profits."

BRASS COMPANY EMPLOYES HOLD OUTING

Employes of the Ohio Brass Co., Mansfield, Ohio, and the Ohio Insulator Co., Barberton, Ohio, held their third joint picnic on August 4 at Myers Lake, near Canton, Ohio. A large attendance turned out for the affair, driving the sixty or more miles to the location of the picnic.

Several contests were on the program for the day, including two baseball games, a baby contest, races for the children, tug-of-war, canoe tilting and others. Dancing was enjoyed in the pavilion, and everyone expressed pleasure at the renewal of this annual affair.

PLUMBSTEAM CLUB TO HOLD LARGE DINNER

The Plumbsteam Club of Philadelphia, Pa., will hold its first major dinner meeting since the new executives of the organization took office on September 14 at the Sylvania Hotel, that city.

President W. W. Morgan has designated the event as "Philadelphia Night," and is already in receipt of letters of acceptance from the Honorable Harry A. Mackey, mayor of Philadelphia, and his cabinet, which includes the directors of the various departments of the city government.

E. L. Flentje, business manager of the Philadelphia Development League, and the board of directors of that movement have indicated that they will be in attendance.

The officers of the club have arranged for a gathering of between three and four hundred, as each member is expected to bring at least one guest.

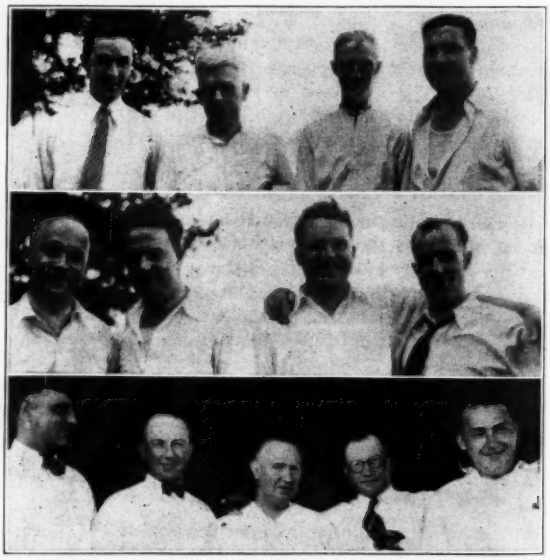
RENEWS LEASE ON FORMER PLANT

The Lincoln Radiator Corp., which recently moved to North Tonawanda, N. Y., has renewed its lease on the Dwyer avenue plant in Utica, N. Y., until March 1, 1929. While the foundry and cupola will not be operating for a while, a complete stock of radiators will be warehoused and shipped from there. C. D. Nelson will remain in charge of the office in Utica, assisted by a force of men to handle shipments to be made from that city.

DETROIT SALESMEN HOLD ANNUAL OUTING

The regular annual picnic of the Detroit Association of Plumbing and Heating Salesmen was held this year at Stag Island, Thursday, August 2. Stag Island is a Canadian owned island in the St. Clair River opposite Port Huron. It is a secluded spot, delightfully cool and ideally equipped for such occasions.

About 50 members and several master plumbers and friends took part in the activities of the day, which included everything from swimming to the new "prohibition" race introduced by Ty Tift, which was undoubtedly the big event of the day, for the observers at any rate.



Top picture: L. J. Potvin of the Hoffman Specialty Co.; J. B. Caldwell of the Pierce, Butler & Pierce Mfg. Corp.; Fred Schossow of Murray W. Sales & Co., president of the association; J. B. Sullivan of the Detroit Brass & Malleable Works. Middle picture: F. E. Hawe; E. Peterson of A. Harvey's Sons Mfg. Co.; E. H. Stiller of the Beaton & Cadwell Mfg. Co.; John R. Shaughnessey of the Nelson Co., secretary of the association. Bottom picture: F. H. Patterson of the Hoffman Specialty Co.; L. L. Wright of the Sloan Valve Co.; George Larkin of the Kimball-Eisenberg Co.; Frank Moran of Nelson Co.; T. L. Osberger of the Standard Sanitary Mfg. Co. Photos taken at the annual outing of the Detroit association of salesmen

Louis Foster, Hugh Bonner and John Watson, vice president of the Michigan State Association of Plumbing and Heating Dealers, arrived at the island in Mr. Foster's speed boat and helped make the day a success by taking the salesmen for rides in the St. Clair River. Incidentally,

Substantial!
in Construction and in Profit to YOU

LIST PRICE $24

More and more heating contractors are expressing their approval of the KAINER PRESSURE GOVERNOR by ordering it for every hot water heating system they install. You may be assured we will maintain the high standards of manufacture that are placing this system foremost in its field.

If you are not installing KAINER PRESSURE GOVERNORS, try one out on your next hot water job and convince *yourself* of its advantages.

Your jobber will supply you

Manufactured and Guaranteed by

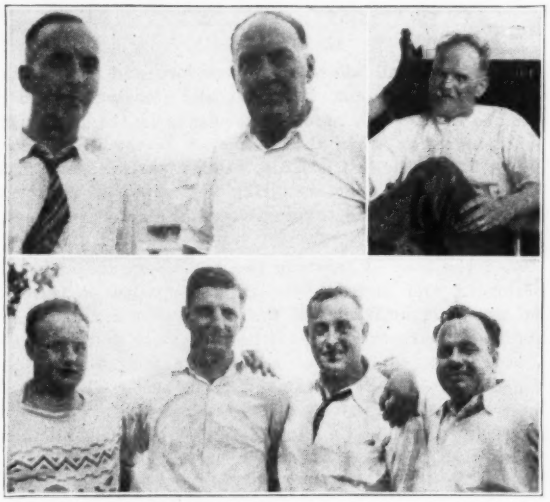
KAINER & COMPANY
CHICAGO
761-763 Mather Street
Manufacturers of Plumbing and Heating Specialties

The KAINER PRESSURE GOVERNOR
FOR HOT WATER HEATING SYSTEMS

LEAD , , The dependable metal

Modern life calls for convenience. It also calls for a show of beauty. But what are these values worth if beneath them there is not a solid foundation of endurance, of *dependability*? Lead has stood the test of dependability for many centuries. It stands today as the plumber's great ally in giving long lasting satisfaction and service. For lead is tough, elastic, withstanding shocks and disturbances that break other metals. *The Eagle-Picher Lead Company, 134 North La Salle Street, Chicago.*

EAGLE , , , Pipe , Fittings , Solder



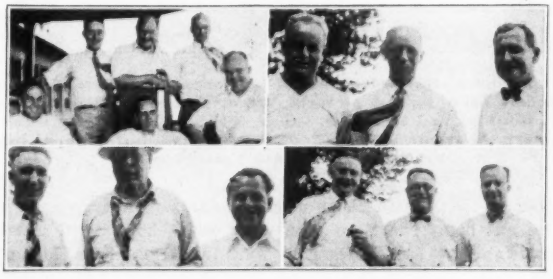
Top row: Hugo Schwan of A. Harvey's Sons Mfg. Co.; Dick Reed of Eljer Co.; Glenn Waid of the Scott Valve Mfg. Co. Bottom row: T. Mann of Murray W. Sales & Co.; C. W. Jendevine of the Detroit Brass & Malleable Works; T. Tift of Murray W. Sales & Co.; H. D. Tuck of the Sloan Valve Co. Photos taken at annual outing of Detroit salesmen

most of them enjoyed a bath of spray as well as a ride.

Both luncheon and dinner were served in the dining room of the Stag Island Hotel and lacked nothing of either quality or quantity. It was quite obvious that everyone had thoroughly enjoyed the day as they started the 60-mile trip back to Detroit.

HOLD DEALER CONVENTION IN HARTFORD

The Silent Glow Oil Burner Corp., Hartford, Conn., held a two days' convention of dealers and salesmen August 6 and 7 at Hartford. The convention was well attended and was given over to educational discussions along oil heating lines. James L. Bauer, president of the Silent Glow Oil Burner Corp., was present and introduced the speakers. Among the speakers were Arthur F. Smith of the Hartford Chamber of Commerce; R. M. Sherman, secretary and general manager of the Silent Glow Oil Burner Corp.; L. S. Kroto, purchasing agent; Fire Chief John C. Moran, Hartford; M. Epstein, Springfield, and George D. Kingsland, Hartford.



Top row: front row, Porter West, Roy Buckindail of the Sherwood Brass Works, Joseph Stewart of the Republic Brass Co.; back row, Harold Taylor of Nelson Co., William Koons of the Standard Sanitary Mfg. Co., and E. Manion of the W. A. Case & Sons Mfg. Co.; Louis Foster, Hugh Bonner and J. Watson, vice president of the Michigan plumbers' association. Bottom row: Martin Cawley of A. Harvey's Sons Mfg. Co.; E. M. Decker of the American Radiator Co.; O. F. Mahaney, Detroit master plumber; Joseph Quirk of the Detroit Lead Pipe Works; H. Buckeridge, Detroit master plumber; S. Wilson of the U. S. Radiator Corp. Photos taken at annual outing of Detroit salesmen

Hot water in farm homes, summer homes and suburban homes is a real necessity. Now is as good a time as any to sell them Ohio Kerosene Heaters, equipped with the latest safety devices and just as efficient as it is possible to make a heater.

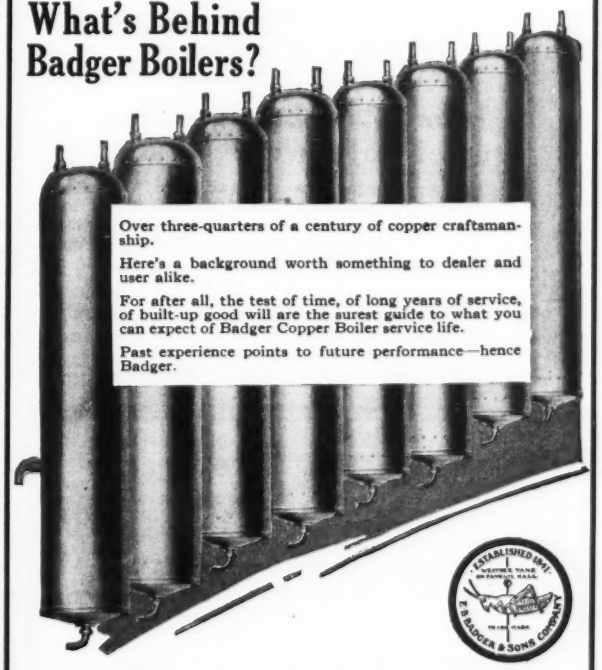
Investigate Ohio's big profit dealer offer that puts new sales easily within your reach.

Write us today for the full particulars

Ohio Heater Company COLUMBUS OHIO

OHIO
KEROSENE WATER HEATER

What's Behind Badger Boilers?



Over three-quarters of a century of copper craftsmanship.

Here's a background worth something to dealer and user alike.

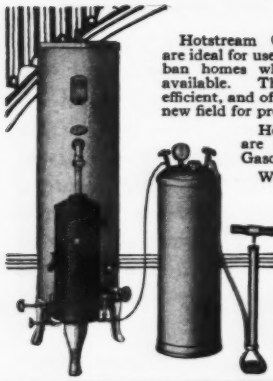
For after all, the test of time, of long years of service, of built-up good will are the surest guide to what you can expect of Badger Copper Boiler service life.

Past experience points to future performance—hence Badger.

E. B. BADGER & SONS CO.

75 Pitts Street BOSTON, MASS.

New York: 271 Madison Ave. Toledo, Ohio: Ohio Bldg.
Tulsa, Okla.: Mid-Continent Bldg.



Hotstream Gas-Pressure Heaters are ideal for use in country and suburban homes where city gas is not available. They are rapid and efficient, and offer the Plumber a vast new field for profitable business.

Hotstream Double Copper Coil Heaters are used, with the Coleman Patented Gasoline Burner.

Write for complete information.

THE HOTSTREAM HEATER CO.
"Makers of Heaters that Heat"
Cleveland, Ohio

HOTSTREAM GAS PRESSURE HEATERS

P.B.F.

EVERY FITTING AIR TESTED UNDER WATER

PHOENIX BRASS FDRY.
Irvington, New Jersey

Watrous

Patent Plumbing Fixtures and Duojet Water Closets

A LINE representing the most advanced ideas in sanitation. Economy of operation and ease of installation. Duojet Closets—Flush Valves—Self-Closing Basin Cocks—Combination Lavatory Fixtures—Pop-Up Wastes—Liquid Soap Fixtures, etc.

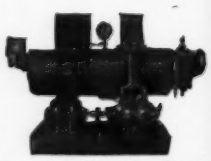
Manufactured and Sold Exclusively by

THE IMPERIAL BRASS MFG. COMPANY
1231 West Harrison St. CHICAGO

JENNINGS Vacuum Heating Pumps remove the condensation and air from the return line of the vacuum steam heating system, discharge the air without back pressure direct to the atmosphere, and return the water under pressure to the boiler.

In standard sizes, from 2,500 to 300,000 sq. ft. equivalent direct radiation. For continuous operation, or with automatic control.

Write for Bulletins Nos. 71 and 35



Jennings Vacuum Heating Pump

NASH ENGINEERING CO.
41 Wilson Rd., So. Norwalk, Conn.

Jennings Pumps

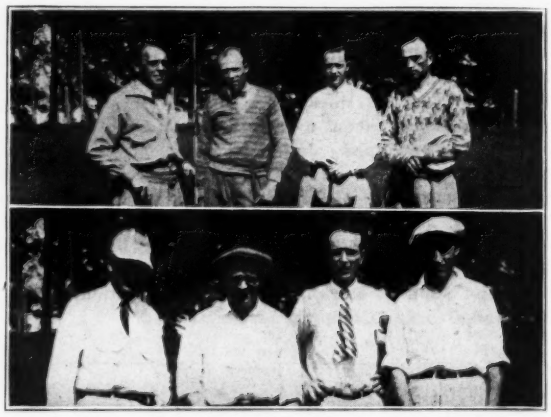
SAN FRANCISCO SALESMEN ENTERTAIN EXECUTIVES

Numbering well above fifty members and guests, the San Francisco Chapter, Plumbing and Heating Salesmen, held one of the best luncheon-meetings in the history of the organization when they gathered at the Clift Hotel, August 7. At the last board meeting a partial reorganization was decided upon, resulting in a material reduction of dues and a sound, aggressive plan to increase membership.

With the idea of securing the full co-operation of the employers, and giving them an opportunity of learning the aims and activities of the association at first hand, invitations were extended to the executives of the various manufacturing and jobbing houses of San Francisco. They responded in full force, among them being: Burr Eastwood of Holbrook, Merrill & Stetson Co., Ross Clark of American Radiator Co., Benjamin F. Blair of Standard Sanitary Mfg. Co., Howard W. Finch of the Kohler Co., Peter P. Schubert of Walworth California Co., Thomas F. Leary of the Muller Co. and H. Porter Wilson of the Richmond Sanitary Co.

In a few words, President Frank Austin outlined the history, policy and aims of the salesmen's association, concluding by expressing the hope that any ignorance of, or indifference to, the accomplishments of the organized salesmen might be dissipated. In short, he hoped the visiting executives would see the advantage to be gained by having their salesmen become members.

Alex Coleman, past secretary of the National Association of Master Plumbers, and a student of sales methods obtaining throughout the country, compared sales prac-



Top picture: Howard Finch, E. L. Stoneson, William F. Lane, Robert Lees. Bottom picture: Andrew Lamond, William Goss, E. Keithley and Curtiss N. Gilley. Photos taken at the recent golf tournament of the Plumbing and Heating Club of San Francisco at Crystal Springs course

tices of today with those of past years. "A large part of the unethical practices of former years have been eliminated," said Mr. Coleman, "and in all fairness I must say that much of this elimination has been due entirely or in part to the efforts of the plumbing and heating salesmen's association." Referring to the keenness of country-wide competition between the industries, the speaker indicated the necessity for having the industry represented by men who are not only willing but anxious to stand by their principles. "In view of this competition, we should do everything possible to work together—every branch of the plumbing and heating field—securing every help, every suggestion and every bit of co-operation we can, especially through organized effort, in

Church Sani-White installation in Pelham Hall Apartment, Brookline, Mass. Seat No. 142

Are you missing toilet-seat customers?

How complete is the line of toilet seats that you handle? Does it include the right kind for hotels, hospitals, schools and office buildings, as well as homes? If not, you're missing your biggest and most profitable customers.

Church Seats are the largest selling toilet seats on the market—that means that they're *easier* to sell than any others. Perhaps a toilet-seat customer comes into your store when you are ready to go out on a job. If you're rushed with work, you can sell him a Church Sani-White Seat and collect your profit on the spot—without leaving your store! Exactly as any retail merchant sells his goods. You can do this because the Church Sani-White Seat comes *packaged,* ready to be installed, and anybody can install it in a few minutes with an ordinary pair of pliers.

The beautiful, lustrous white surface of the Church Sani-White Seat makes it especially suitable for private homes and apartments as well as apartment-hotels and hospitals. This glistening, smooth surface is *not a paint, lacquer or enamel.* It is a solid covering—it has no joints in which germs and dirt can lodge. It will not chip, wear off nor turn color. It is definitely guaranteed. After years of service, it will remain as free from cracks and imperfections as when it left the factory.

Church Seats
sani-white

"Toilet Seats for Better Bathrooms"

Also manufacturers of Church Sani-Black Seats

Established 1898

How we help you to sell

Church Seats are advertised in magazines and newspapers that reach millions of home owners. At the bottom of every advertisement is a coupon to be filled out and mailed in to us. Thousands of these coupons *are* mailed in—and every name and address we get this way, we turn over to our nearest dealer. The dealer gets in touch with the home owner or apartment-house owner, and in most cases he makes a sale. Frequently, he sells *other* bathroom equipment besides Church Seats, and gains a steady, permanent customer.

Whether you handle Church Seats now or not, let us give you all the details of our co-operation with distributors, and tell you all about our complete line of seats—Church Sani-Black Seats as well as Church Sani-White Seats.

Church Sani-Black Seats are specified in every section of the country for hotels, hospitals, office buildings, and industrial buildings where hard use is to be expected. They will never wear out. They are guaranteed for the lifetime of any building in which they are installed.

Together, these two lines of toilet seats take care of every quality requirement of your customers. Fill out the coupon—today—and mail it in to us! C. F. Church Manufacturing Company, Holyoke, Mass.

C. F. Church Manufacturing Co.
Department 2-8, Holyoke, Mass.
Gentlemen:
Kindly send me your complete selling plan for Church Sani-White and Sani-Black Seats.

Name_____

Address_____

City_____ State_____

M-VB
CLOSET TANK FITTINGS

The new M-VB Ballcock No. 1 is ideal for replacement work, and can be installed in any tank regardless of how close the hole is to the end of the tank.

It will close off quietly with a 4″x5″ float up to 225 pounds pressure. A discharge retarder in the hush tube eliminates all rushing noise when the tank is being refilled.

A special folder has been prepared giving full information on this new M-VB product, and is available upon request.

No. 4
Quiet as a Mouse

Various hand operations performed on all M-VB Fittings by loyal, interested workers have added a quality far above the common.

look for the trade-mark M-VB on ballcocks levers valves

Morency-Van Buren
MANUFACTURING DIVISION
SCOVILL MANUFACTURING CO.
Sturgis, Michigan

A SCOVILL PRODUCT

Photo of those in attendance at first annual convention of the Uniflow Mfg. Co., Erie, Pa.

order to raise the status of our industry to the very peak. In conclusion, let me say that I am sold absolutely on the salesmen's association."

J. C. Keene, Pacific coast manager of the Plumbing and Heating Industries Bureau, expressed his realization of the importance of the salesman in relation to the development of markets. "The association man," he said, "is not only a capable salesman, but he has in mind at all times the idea of giving to his employers only the best there is in him."

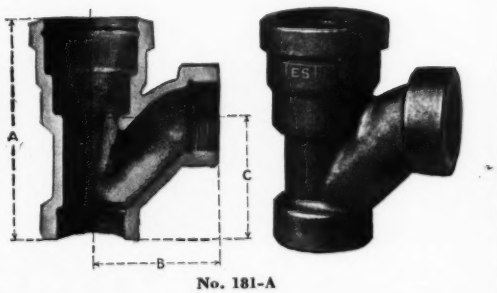
Burr Eastwood said in part: "There are certain unethical practices to be found in the industry, but this condition is being rapidly overcome, and largely, I find, through the efforts of this organization." Mr. Eastwood concluded by stating that his firm is heartily in accord with the aims and efforts of the organized salesmen.

Felicitating the local chapter on its splendid progress, Benjamin F. Blair indicated further means of advancing the best interests of the industry through their contact with the retailers and by urging the salesmen to convince the plumbers everywhere that they should work with the bureau. He further recommended that the plumber should be encouraged to have his show window attractively dressed, "thereby increasing the volume of sales with profit, which is what we are all after."

Fred Eckardt of E. A. Cornely Co., Inc., having been appointed by President Austin at the last meeting to represent the salesmen's association at the organization meeting of the Home Modernizing Bureau, held the previous Friday, made a brief report of what took place. He indicated that when the new movement starts bearing fruit, it should mean considerable to the members of the plumbing and heating field. "In view of the limited construction work under way and projected, the best field at present lies in the direction of remodeling. As I see it, this is our opportunity as salesmen."

Blake-Testite Drainage Fittings

HUB TYPE



No. 181-A

Made heavy and furnished in addition to above in Double T-Y's, Short Sweep Bends and Unions. Also furnished in threaded openings all around instead of Hub tops.

Made in a variety of straight and reducing sizes. These are very handy fittings and most sanitary on account of the T-Y construction.

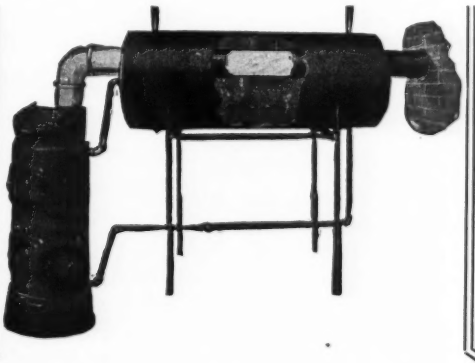
Your jobber will furnish them — send for complete Catalog.

BLAKE SPECIALTY COMPANY
Rock Island, Ill.

Canadian Service: All Crane Co. Branches

Bookhout & Law, Inc., 331 Madison Ave., New York City, N. Y., Eastern Distributors Warehouse Stock.

L. C. Coombs, Manager Pacific Coast Warehouse, 1010 No. Gardner Street, Los Angeles, Calif.



Ask your jobber to show you a Dubé Combined Garbage Burning Water Heater or write us for the full construction and operation facts. You're really missing a big bet if you are not acquainted with the profit possibilities of the Dubé line. Ask your jobber or write us today.

DUBÉ
Combined Garbage Burning Water Heater

DUBÉ BOILER WORKS
1244 E. 73rd Street CHICAGO, ILL.

TRENTONIZE!

Trentonize means to standardize on the Brass Fittings that have withstood all the rigid tests of service on the job.

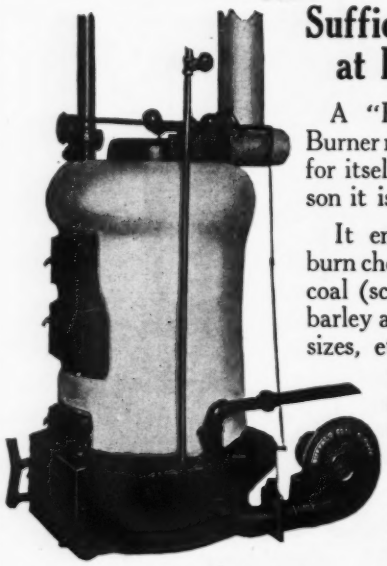
When you do Trentonize you will wonder how you got along before you made the change.

The Trenton Brass and Machine Co.

Trenton :: N. J.

Represented by Rollin C. Wilson

7 E. 42nd St., New York, N. Y.
261 Franklin St., Boston, Mass.
121 N. Broad St., Philadelphia, Pa.



A "Buffalo" Coal Burner attached to furnace. Simple to install and operate.

Sufficient heat at low cost

A "Buffalo" Coal Burner more than pays for itself the first season it is used.

It enables you to burn cheaper grades of coal (screenings, rice, barley and buckwheat sizes, etc.) and provides the same amount of heat as any of the better grades.

Excellent for steam or hot water heaters or furnaces.

Complete particulars gladly sent on request.

Buffalo Forge Co.

483 Broadway **Buffalo, N. Y.**

In Canada

Canadian Blower & Forge Co., Ltd., Kitchener, Ont.

BUYS OUT PUMP COMPANY

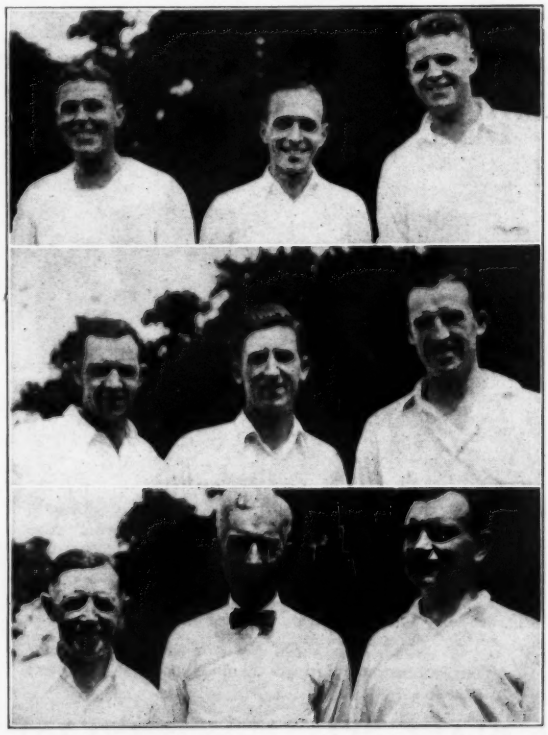
The Williams Oil-O-Matic Heating Corp., Bloomington, Ill., has bought the controlling interest in the Mechanical Devices Co., Aurora, Ill., including its patents. The plant has been moved to the Williams concern's factory. It manufactures a direct drive rotary pump which is sold to a number of other oil burner manufacturers, and this outside business will be continued, as well as its use by the Oil-O-Matic company.

NEW JERSEY GOLFERS TIE FOR HONORS

A tie for first prize developed at the meet of the Plumbing & Heating Trades Golf Association of New Jersey, held at the Canoe Brook Club, Summit, N. J., on Thursday, August 9. Robert D. Elder, J. D. Johnson Co., vice president of the association, and James Rogers, Orange wholesaler, each had net 65, and each will have his name engraved on the President Engelberger Cup.

Almost three score turned out for the tournament, where James Weaver, Central Tube Co., and Ray Moody, Sloan Valve Co., were hosts. The morning round was a nine-hole, blind par affair, with members selecting their own handicaps. A guest, W. D. Graham of Chicago, drew for the number and pulled 35, this happening to be actual par. Three members, Ambrose Walsh, Harrison; George W. Sahlin, C. F. Church Mfg. Co., and Captain E. M. Robinson, of W. S. Roe, had this net, the match giving Mr. Sahlin a sweater and socks set and Mr. Robinson a golf club.

The afternoon 18 holes of handicap medal play gave the following prizes in Class A: W. B. Watson, Belleville, first; Mr. Weaver, second; Mr. Sahlin, third; A. Del Tufo,



Top picture: G. W. Sahlin of the C. F. Church Mfg. Co., G. Moran of Grinnell Co., and M. A. Buckley of the U. S. Radiator Corp. Middle picture: A. S. Hanley, H. B. Russell of Speakman Co., and J. H. Hogan of the U. S. Radiator Corp. Bottom picture: James A. Byrne of J. B. Wise, Inc., W. C. Clift of Bowden Co., and George Hamill of the A. M. Byers Co.

Speedily Applied Yet Fine in Appearance

Asbestocel Pipe Insulation Pleases Builders

TWO facts about Improved Asbestocel Pipe Covering recommend it chiefly to the wise plumber and heating contractor—

The first is—the speed with which his mechanics may apply it.

Because of its consistent roundness and hardness, a mechanic can apply Improved Asbestocel in much less time than the same mechanic could put ordinary air cell on the same run of piping. That saved time is money in your pocket.

The second point is—the fine appearance of the finished job.

After all, your finished job either recommends you or tags you or your men as poor mechanics. The even roundness and the clear white color of Improved Asbestocel after it has been applied to the heating pipes of a new home are bound to add to your reputation as a careful workman. That counts heavily, particularly with the builder of houses for sale.

Price?—

Did you know that for the average house the difference in price between good Improved Asbestocel and ordinary air cell amounts to only about a dollar?

If you want more information, ask your jobber, or send the coupon to Johns-Manville Corporation.

Builders and home buyers alike recognize the quality of Asbestocel

MASTER *of* ASBESTOS

Johns-Manville

IMPROVED ASBESTOCEL

JOHNS-MANVILLE CORPORATION
New York, Chicago, Cleveland, San Francisco
Branches in all large cities
Canadian Johns-Manville Co., Ltd., Toronto
Please send me complete information about Improved Asbestocel Pipe Insulation.

Name.....

Company.....

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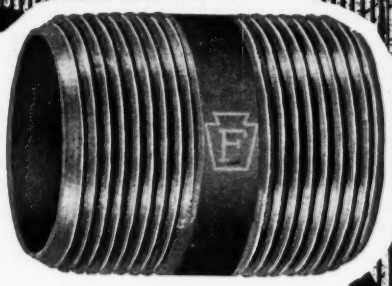
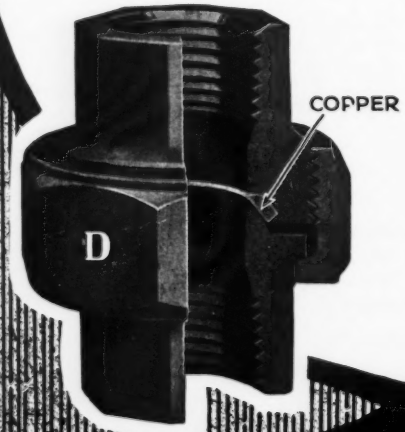
Fretz Nipples



The service that Fretz Nipples and Devlin Fittings have given wherever they have been used, makes them more than equipment—they are necessities of good work.

S. S. FRETZ, JR. & CO.
PHILADELPHIA, PA.

THOS. DEVLIN MFG. CO.
Owned by S. S. Fretz, Jr. & Co.
23rd St. and Sedgley Ave. Philadelphia, Pa.



Devlin Malleable Iron Fittings

Newark, fourth; Fred Engelberger, Newark, fifth, and Philip J. Eager, Long Branch, sixth. In Class B, the Messrs. Rogers and Elder were followed by P. D. Rech, Hoffman Specialty Co.; W. C. Clift, Bowden Co.; William Patterson of Newark, and A. A. Tesch, Spencer Heater Co., placed in that order. Guest prizes went to Lee Kellar, Trenton Potteries Co., and A. F. Schober, Goodrich Tire & Rubber Co.

The next meet, it was announced, will be at Braidburn Country Club, Madison, N. J., on September 12.

The scores:

Class A

Player	G.	H.	Net	Player	G.	H.	Net
G. W. Sahlin	99	24	75	W. B. Watson	93	23	70
F. Engelberger	112	24	78	S. Miller	108	20	88
H. B. Russell	107	18	89	J. Miners	126	22	104
C. W. Stewart	109	18	91	E. M. Robinson	105	24	81
H. B. Hedges	123	24	99	R. R. Owen	100	20	80
Geo. Hamill	105	20	85	A. Del Tufo	102	24	78
A. J. Hanley (Guest)	91	..	..	Lee Kellar (Guest)	98	..	..
Jesse Thorne	91	12	79	S. F. Wilson	No card		
J. S. Weaver	87	16	71	F. C. Stille	No card		
Wm. Abernathey (Guest)	97	..	..	W. D. Graham (Guest)	No card		
Philip Eager	84	6	78				

Class B

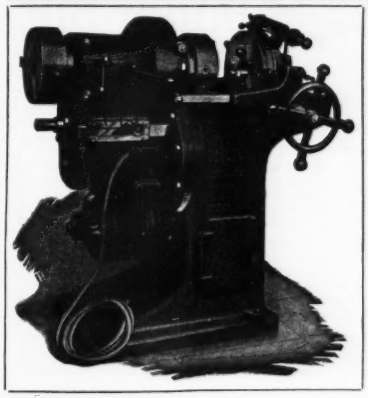
C. B. Wynne	122	40	82	C. Marquardt	132	46	86
M. Carr (Guest)	104	..	..	P. D. Rech	115	46	69
M. A. Buckley	116	30	86	V. Werner (Guest)	108	..	..
R. E. Ryan (Guest)	148	..	..	**A. Tesch**	114	36	78
W. D. Graham (Guest)	118	..	..	Edw. Bender	135	36	99
W. H. Oleson	110	30	80	M. Bal	118	36	82
W. C. Clift	109	36	73	H. Fiedler (Guest)	134	36	98
J. A. Byrne	125	40	85	Wm. Kreuger (Guest)	131	..	..
Robt. D. Elder	105	40	65	S. Orr (Guest)	109	..	..
A. F. Schober (Guest)	115	..	..	Wm. Patterson	120	46	74
S. H. Blackwood	127	36	91	M. Duffy	124	..	..
B. Miller	136	36	100	John E. Joyce	117	32	85
E. Moran	159	46	113	Jas. Rogers	111	46	65
J. M. Buday	168	46	122	E. Fiigon	128	40	88
W. Lawson (Guest)	120	..	..	H. S. Officer	No card		
				F. Bluhm	No card		

WALTER J. KOHLER RETALIATES AGAINST GOV. ZIMMERMAN

Much agitation has been caused among plumbers of Wisconsin over a remark made by Governor Fred R. Zimmerman in a campaign speech at Milwaukee. The governor spoke at the Schroeder hotel there at the formation of the Milwaukee County Zimmerman Club. In the course of his talk he is quoted as making the following statement: "One candidate on the republican ticket believes he would make a good governor because he has been a private detective. Another thinks he ought to be governor because he is a multi-millionaire manufacturer of plumbing supplies. We know from experience how financially successful plumbers are, and why. Call a plumber to repair a faucet and after ten minutes of imperceptible effort he will use that faucet to draw all the loose change out of your house. If you want to go bankrupt, hire a plumber."

Walter J. Kohler, president of Kohler Co., in a public statement to the press, has termed Mr. Zimmerman's remarks as "a slander, wanton and scurrilous." Mr. Zimmerman, according to Mr. Kohler, "in an attempt to discredit me, has attacked thousands of skilled craftsmen engaged in the plumbing trades." Said Mr. Kohler: "If the attack were directed only at me personally, I would ignore it as I have others. But as the plumbers have been wantonly slandered and vilified by a political opponent because of his opposition to me, I feel it incumbent upon me to answer the charge.

"During the more than 30 years that I have been engaged in the manufacture of plumbing supplies I have



"CHICAGO" No. 2
Power Pipe Threading Machine

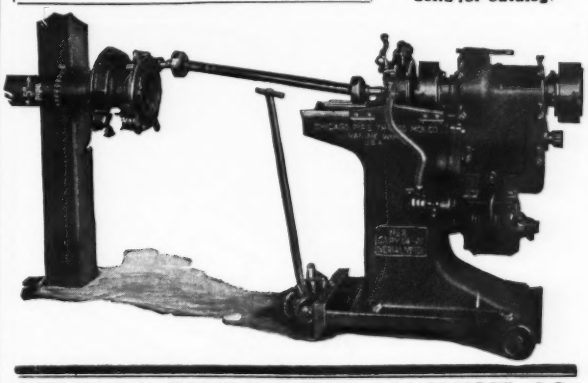
For Production and Precision Threading

PORTABLE

Capacity ¼" to 2" Pipe
" ½" to 1½" Bolt

FEATURING:
1. Quick Die Change
2. Automatic Die Head
3. Three Speeds
4. Perfected Oil Control

Send for Catalog



CHICAGO PIPETHREAD MACHINE CO.
Office and Factory: 1615 Racine St., RACINE, WIS. U. S. A.

A Fountain and Cooler That Can Be Installed in Any Office or Factory

PLUMBING NONCO FIXTURES

PLUMBING NONCO FIXTURES

NONCO PL. 4464N Fountain and Cooler

N. O. NELSON MFG. CO.
ST. LOUIS, MO.

BRANCHES:

Birmingham, Ala.
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Houston, Texas
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Jackson, Miss.
Memphis, Tenn.
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MYERS "Honor-Bilt" POWER PUMPS

Water is just as essential in a manufacturing plant, a mill, mine or factory as it is in the home or on the farm, but larger consumption for manufacturing processes and sanitary uses necessitates employing power pumps of greater capacity.

MYERS POWER PUMPS have long been known for their simplicity of construction, installation and operation, and uniformity of service, and now that the self-oiling, enclosed working parts and other late features have been added, they head the list for safety, economy, and dependability. As a quantity user of water, Pumps like the MYERS hold many sales possibilities for you of improving your water service as a dealer be it extensive or limited. Catalog on request.

THE F.E.MYERS & BRO.CO. Ashland, Ohio
— ASHLAND PUMP AND HAY TOOL WORKS —

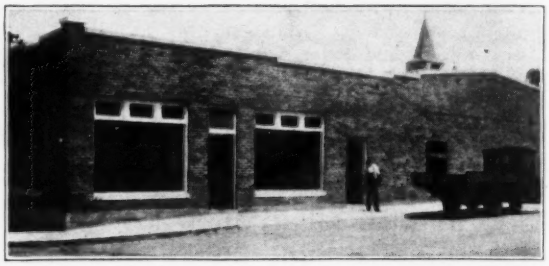
YOUR FITTING PROBLEM IS SOLVED *when you say*
"SQUARE GEE'S"
SQUARE Pipe
"GEE" Fittings
DRAINAGE, BRASS
MALLEABLE, CAST IRON
THE GRABLER MANUFACTURING CO., and its subsidiary GRABLER-REPUBLIC, Inc. CLEVELAND, OHIO
San Francisco • Los Angeles • New York • Chicago

Kaustine
Safe Sanitary Sewage Disposal
Easy to Sell And Easy to Install
Kaustine Co., Inc.
42 Main St.
Perry, N. Y.

$66 to $285

BUTTERFIELD, Inc.
Glendale, California
Plumbers Say:
I would recommend the Everhot to any merchant-plumber who values his reputation and is interested in building business.

EverHot Heater Co.
Detroit, Michigan
Branches and Sales Offices in 61 Cities in United States and Canada



New Lexington, Ky., branch of Laib Co., Louisville, of which A. H. Taylor is manager

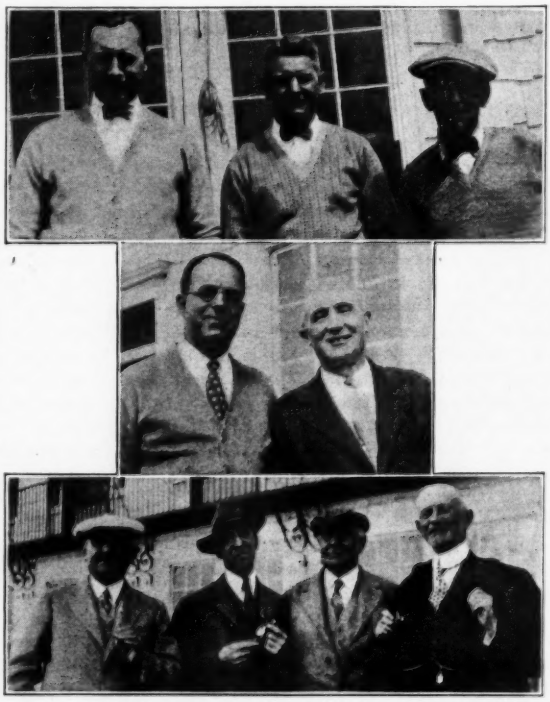
been in close contact with, and entertain a high respect for, plumbers throughout the United States. I have seen the plumbers' craft constantly expanding in usefulness to humanity. Without the sanitary facilities made possible by the plumbing trades our great cities would be an impossibility. Without adequate plumbing, modern civilizaton would fail."

NEW ENGLAND GOLFERS PICK GOOD DAY

On August 9, the New England Metal Products Golf Association held its regular meeting at Hoosick Whisick Country Club, with a total attendance of 31. Whoever picked the day was a good weather prophet, as it was the first fine day following a week of cool, rainy weather.

During dinner a vote of thanks was extended to James W. Rollins for his many courtesies to the club, as he was again host at Hoosick Whisick. It was also voted to send an additional remembrance to M. W. Dennison, who has suffered a slight relapse.

In the morning, Walter Rice won first low net with a

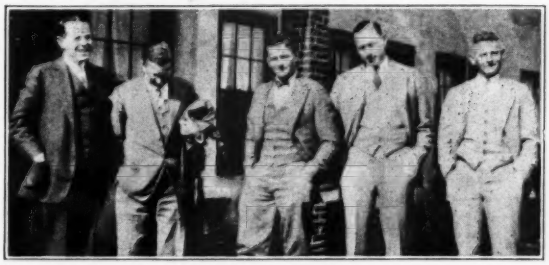


Top row: Robert McKeown, Jr., W. H. Taylor, Charles F. Glavin. Middle row: Frank A. Monroe and P. W. Donoghue. Bottom row: Walter J. Eddy, W. H. Thayer, James W. Rollins, Dr. E. D. Chesbro. Photos taken at the May meet of the New England Metal Products Golf Association at Dedham Polo and Country Club

68 and William Hayes won second low net with a 69. In the afternoon, Robert McKeown won first low net with a 70 and J. E. Bradshaw won second low net with a 71. The next meet will be held at the Worcester Country Club, Worcester, Mass., on August 23.

The following are the scores for the day:

	Morning Round			Afternoon Round		
	G.	H.	Net	G.	H.	Net
Greenlaw	..	..	..	90	8	82
Bontecou	..	..	..	90	18	72
Elliott	..	..	..	107	22	85
Beal (Guest)	..	..	..	87	..	..
Corcoran	..	..	..	104	15	89
Washburn	93	14	79	92	14	78
Batchler (Guest)	79	..	..	82	..	..
Rice	92	24	68	89	24	65
Monroe	83	9	74	87	9	78
McKeown	85	12	73	82	12	70
Osborn	90	15	75	88	15	73
Nicholl	92	9	83	88	9	79
Hayes	81	12	69	81	12	69
Nickerson	..	..	..	87	14	73
Ritchie	83	12	71	88	12	76
Thayer	90	9	81	86	9	77
Harvey	101	22	79	103	22	81
Bradshaw	103	18	85	89	18	71
Rollins	..	..	..	108	20	88
Mann (Guest)	87	..	..	83	..	..
Eddy	108	24	84	..	..	..
Lynch	108	30	78	107	30	77
John Stevens	120	30	90	..	..	..
Jordan	..	..	..	103	..	..
Maynard	106	36	70	..	..	..
Thorndike	95	19	76	98	19	79
Bloom	107	26	81	106	26	80
Thompson	99	18	81	100	18	82



N. W. Dennison, John Nicholl, William Hayes, Robert McKeown, William Taylor, at the Sandy Burr meet of the New England Metal Products Golf Association

Personal Mention

Chauncey O. Duston, formerly with Charles Millar & Son Co., has been elected vice president and assistant manager of the Peerless-Atlantic Co., wholesalers at 93 Broad street, Springfield, Mass.

John Dorsey of the American Heater Corp., St. Louis, Mo., has recently been made district sales manager for the company's products in Missouri, Illinois, Indiana, Wisconsin and Kentucky. He will maintain headquarters at 6 North Sixth street, St. Louis.

M. W. Haire, manufacturers' representative, 5 South Wabash avenue, Chicago, Ill., has acquired the account of the New York Air Valve Corp.

H. T. Grater has recently been made chief clerk in the Kohler Co. branch in Philadelphia, Pa. He is under the supervision of **H. H. Held,** manager of the Kohler interest in the Philadelphia territory.

Russell Foster, 377 Springton road, Bywood, Pa., a suburb of Philadelphia, has been reappointed to that territory by the Nye Tool & Machine Works, Chicago, Ill.

If it's fine porcelain enameled equipment they'll know it by this sign

PORCELAIN ENAMEL ON TRADE MARK ARMCO REG. U.S. PAT. OFF. RESISTS RUST INGOT IRON

The mark that identifies flawless porcelain enamel

FOR years home owners have known the high quality significance of the blue and gold ARMCO label. On ranges, refrigerators, kitchen ware and table tops, it is nationally accepted as an indication of excellence.

So it is with the equipment you sell and install. Sinks, laundry tubs, and other plumbing fixtures are assured ready sales if they're porcelain enameled on genuine ARMCO Ingot Iron.

You can shorten sales talks, speed turnover, and give your customers lasting satisfaction—with ARMCO-labelled products. Shall we tell you who makes them?

THE AMERICAN ROLLING MILL CO.

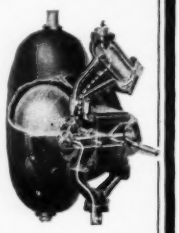
Executive Offices, Middletown, Ohio
Export: The ARMCO International Corporation
Cable Address—ARMCO, Middletown, (O)

District Offices

Chicago Detroit New York
Cincinnati Philadelphia San Francisco
Cleveland Pittsburgh St. Louis

Self-cleaning in the hardest water

Over a year's continuous service, 24 hours per day, with water of 38 grains hardness—and never cleaned once. You can do it with M & M Self-Cleaning Duplex Boiler Feeder.



McDONNELL & MILLER
400 N. Michigan Ave., Chicago

Do you know its price and profit?

McDONNELL & MILLER
Self-cleaning Duplex Feeder

Haas

Flush Valves **for use in combination with all styles of bowls for all classes of service to operate under low or high pressure water supply.**

Water Closets **for every type or class of service.**

Frost Proof Closets. **Direct flush or after flushing.**

Write for catalog.

Philip Haas Co., Dayton, Ohio

DURO

Water Softeners

Automatic Semi-Automatic Hand Operated

Electric Water Systems
For Shallow or Deep Wells

Filters + Septic Tanks

Let us send you new Price Sheet and all details on Duro Finance Plan which makes sales easy.

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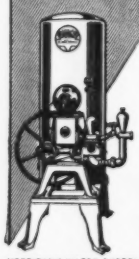
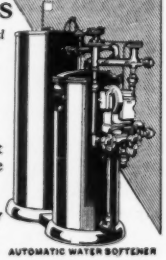


VERTITANK WATER SYSTEM



AUTOMATIC WATER SOFTENER

For Heating Engineers It's the Book of the Year

"Burnham Handbook of Engineering Data" is a supplement to our new Catalogue 67. Ask for a copy when you write for the Catalogue.

It's a complete guide to recent heating practice.

Representatives in all principal cities of the United States and Canada

Burnham Boiler Corporation
Irvington, New York.

Mr. Foster, who has been a member of this concern's sales force for some time, is covering eastern Pennsylvania, Delaware, Maryland and Washington, D. C.

A. M. Hale has been appointed Philadelphia representative for the Stockham Pipe & Fittings Co. Mr. Hale's office is Room 1322 North American building, that city. He formerly had charge of the company's west coast business.

TEMPORARILY STOP MEETINGS OF SEATTLE SALESMEN

Meetings of Plumbing and Heating Supply Salesmen's Association, Seattle, held every other Thursday afternoon at the Seattle Yacht Club, will be stopped until the first Thursday in September, Robert McComb of the Walworth Co., president, announces. On July 23 every supply house salesman took his two weeks' vacation. This was started several years ago and has become a custom.

THIS WAS NEWS 1908 20 YEARS AGO

August 15, 1908

Crane Co., of Chicago, has just made arrangements to open a branch house at Little Rock, Ark. Crane Co. has also purchased the supply business of R. O. Rodolf on North Market street, Wichita, Kans., and this business will hereafter be known as a branch house of Crane Co.

—1908—

The Master Plumbers' Association of Erie, Pa., held its annual outing and dinner on the peninsula near that city on Friday, August 7, with a majority of members present. After a trip on the lake in launches, the party enjoyed a fish dinner at the pavilion and spent the remainder of the day informally.

—1908—

The August meeting of the Master Plumbers' Association of Philadelphia, Pa., was well attended and several new members were elected. A fund, whereby the widow or beneficiary of a deceased member will receive a sum of money, is about to be created by the association.

—1908—

Otto Biefield & Co., of Watertown, Wis., have been awarded the contract for the installation of a heating system in the new Woodward-Stone factory building.

—1908—

The annual outing of the Master Plumbers' Association of Pittsburgh and Vicinity was held at Rock Point Park, near Elwood City, Pa., on Saturday, August 8. A special train of fifteen coaches took about 1,000 persons to the scene of festivities. Immediately upon the arrival of the train at the park, the crowd went to the ball grounds, where a baseball game was played between the teams of the Pittsburg Water Heater Co. and the Ruud Mfg. Co.

—1908—

Amos Harrison of Chicago has received patent on a water and air relief-valve. The patent has been assigned to Warren Webster & Co., of Camden, N. J.

—1908—

Chatfield & Armitage of Jamestown, N. Y., have been awarded the contract for the plumbing in the new Y. W. C. A. building, the plumbing and heating in the new county court house and plumbing and heating in the new Jamestown garage.

Markets

(Continued from Page 60)

Soil Pipe

The amount of soil pipe which is being consumed by the plumbing trade accounts for good sales both on jobbers' and makers' parts. Tonnages for this territory, through the increased demand which has obtained during the past several months, have been brought up to almost equal those recorded for the first seven months of last year. Wholesalers are maintaining well assorted stocks.

Pipe—Brass, Steel and Wrought Iron

Early month consignments of makers are reported as substantial. Steel mill representatives find a good demand for this time of the year as contractors are absorbing pipe for roughing-in requirements. Jobbers are stocking wrought iron and brass pipe in larger quantities as their dispositions become more frequent. Production is maintained at a comparatively high level.

Fittings

Aside from the fact that cast iron, malleable and drainage fittings continue to hold the interest of contractors in larger measure than heretofore, the only noticeable development in this market during the week was the issuance by a number of nipple manufacturers of an approximate 10 per cent reduction in their prices to jobbers. Most wholesalers have ample stocks on hand to care for their customers' near-at-hand requirements. Deliveries from factories are not delayed. Prices of fittings, according to makers and wholesalers, remain unchanged.

Enameled Ware

Enameled ware manufacturers still show the optimistic feelings which their steadily mounting sales records have brought about. Wholesalers have been accumulating much larger stocks than during former months, for the rate of demand from their trade has been quickened in quite perceptible manner. Shipments are leaving sources in fairly prompt manner. Producers' prices have undergone no change.

Pottery

In so far as demand from plumbing contractors showed steady increase during the month of July, wholesalers committed themselves extensively for first of the month shipments. Stocks of staple ware at distributing points are, therefore, of ample nature. There are many operations which are reaching the stage where special pieces are required and a number of potters and jobbers consequently find considerable improvement in this sphere of their activities. Shipments of staples, while delayed in some instances, are being fairly well attended by makers. No price changes were effected during the week by potteries.

Plumbers' Brass Goods

Quantity buying and some step-up in future delivery specifications by wholesalers was reported by several manufacturers' representatives during the past seven-day period. Consumption of brass commodities has advanced rapidly during previous weeks and wholesalers' stocks have consequently been in need of constant replacements. Factories are in steady production and are making deliveries as requested. Makers' and wholesalers' quotations have not been changed.

Range Boilers

Most factory working schedules seem to be at near capacity and their products are being moved into consumption and to distributors' warehouses at a rate which is satisfactory. Wholesalers in turn report good disposals to their trade and naturally are compelled to keep well varied stocks on hand.

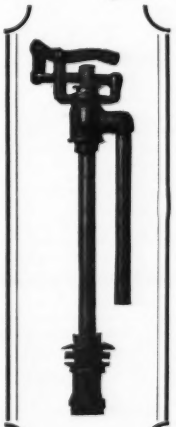
FITZGIBBONS STEEL BOILERS
"The Boiler you can afford to own"

Steel-assured dependability and durability
Advanced scientific design
Extraordinary economy
Compact, brickless construction
Practically no maintenance expense
Proved by forty years of faithful service
Heating Sizes from 300 to 36,000 sq. ft. Steam Rating
Power Sizes from 40 to 350 H. P.

Complete information, ratings and dimensions upon request

FITZGIBBONS BOILER CO.
INCORPORATED
570 Seventh Ave., New York, N. Y.

Perfect Performance



If you will consider for a moment the unusual construction features of the Enterprise Ball Cock, you'll readily understand why it is capable of the perfect performance that it gives in all installations and under all conditions.

Enterprise Ball Cocks are made, first of all, from the very highest quality brass. The process through which they pass is the very latest and most approved. The test that determines their fitness for sale absolutely turns out any faulty ball cock that may come through.

FROM YOUR JOBBER

Enterprise Brass Works
MUSKEGON :: :: MICHIGAN

SIMPLIFIED VAPOR HEAT

You don't need highly technical knowledge to install this thoroughly satisfactory Vapor System. Write for all particulars, low prices and trade discounts.

Hutchison Regulator Sales Corporation
12 Lispenard Street New York

HUTCHISON SYSTEM

TANKS

PRESSURE SPECIAL
BLACK & GALVANIZED
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PENNA. RANGE BOILER CO.
24th and Washington Ave., PHILADELPHIA

ARMSTRONG
Twin Jaw
CHAIN PIPE
WRENCH

POINTS OF EXCELLENCE

Extra large bolt fastens jaws and handle solidly together.
Larger bearing of Jaw on Bar.
Chain Guides aid in adjusting chain and protect chain and end of bar from abrasion.
Every flat link chain is Proof Tested.
Extra large chrome-nickel alloy steel shackle link.

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323 N. Francisco Ave. CHICAGO, U. S. A.

BURKS
SUPER-TURBINE
PUMPS

"Only one moving part"
— A LIFE-TIME OF SERVICE! —
Dealers: Send for No. 83 Bulletin!
DECATUR PUMP COMPANY
632 E. Cerro Gordo St., Decatur, Ill.

Boilers and Radiators

One maker has reported exceptionally large sales for July and good shipments so far this month. Another states that his volume since the middle of June, both on actual deliveries and unfilled orders is in excess of that recorded for the corresponding period of the past several years. Good consumption of heating equipment obtains and factories are working steadily to satisfy the demand.

PACIFIC COAST

New Work Continues to Open—

Conditions on the Coast showed little change during the past week and business as a whole continues to keep to the same level as it has held for the past few months. There is a fair amount of new work going forward each week and it is expected by sellers that this condition will continue. Price conditions among the trade changed little during the week and jobbers' prices as a whole are holding firm.

Soil Pipe

Demand for soil pipe is of moderate volume, which most wholesalers can fill from stocks on hand without delay. Coast wholesalers generally are carrying 90-day stocks, due to their distances from sources of supply, and also due to the fact that this commodity is shipped via the Panama Canal and goods are usually about 30 days in transit.

Pipe—Steel and Wrought Iron

Little change was noted in the demand for these commodities during the past week, and they continue to move in a steady volume and, while most orders received by wholesalers at present are not large, the aggregate amount of tonnage being consumed on the coast at present is of substantial volume. Most distributors have well balanced stocks of both steel and wrought iron pipe and the trade's requirements can be promptly filled.

Fittings

Current demand for fittings is not heavy, most of the trade purchasing only in small lots for their immediate requirements. Wholesalers generally have well balanced although not heavy stocks, depending upon manufacturers for prompt shipment of replacement orders as the need arises. Distributors' prices to the trade remain unchanged.

Enameled Ware

A steady although not heavy demand for this commodity continues, which shows very little change from week to week. Coast wholesalers generally have well balanced stocks and can also secure prompt replacement of merchandise as sold from nearby factories.

Pottery

Most of the trade is purchasing only such pottery as is required for current needs, which at present are not heavy. Distributors generally have good stocks of staple ware and practically all of the trade's needs can be promptly filled. Coast potteries are in a position to make early delivery on any classes of material.

Plumbers' Brass Goods

No change was noted during the past week in plumbers' brass goods, demand continuing to be of substantial volume. Distributors generally have well assorted stocks and nearby factories are in a position to make early delivery on all clases of this material should it be required.

Range Boilers

Little change was noted in the demand for range boilers, which at present is not very heavy. Distributors generally have sufficient stocks on hand to supply all of the trade's needs without delay.

Convention Dates

August 21, 22, 23 and 24, 1928.—A. S. S. E.—The twenty-third annual convention of the American Society of Sanitary Engineering, to be held at the Pfister Hotel, Milwaukee, Wis.

August 24 and 25, 1928.—WISCONSIN—The annual convention of the Wisconsin Society of Plumbing Inspectors, to be held in Milwaukee, with headquarters at the Pfister Hotel.

September 17, 18, 19 and 20, 1928.—FUELS MEETING.—The Second National Fuels Meeting, at Cleveland, Ohio, under the auspices of the Cleveland Section of the American Society of Mechanical Engineers.

October 10 and 11, 1928.—E. S. A.—The Fall meeting of the Eastern Supply Association, to be held at the Hotel Astor, New York City.

October 15 to 19, 1928.—A. P. H. A.—The fifty-seventh annual meeting of the American Public Health Association, to be held at the Stevens Hotel, Chicago. An exposition will be held in connection with the meeting.

October 24, 25 and 26, 1928.—C. S. A.—The thirty-fourth annual meeting of the Central Supply Association, to be held at the Palmer House, Chicago.

November 19-24, 1928.—COAL CONGRESS.—The Second International Conference on Bituminous Coal, at the Carnegie Institute of Technology, Pittsburgh, Pa.

January 28, 29, 30 and 31, 1929.—A. S. H. V. E.—The annual meeting of the American Society of Heating and Ventilating Engineers, at Chicago, Ill.

May 23, 24 and 25, 1929.—N. A. P. H. S.—The fourth annual convention of the National Association of Plumbing and Heating Salesmen, to be held at Philadelphia.

COMING TRADE EVENTS

August 18, 1928.—The outing of the Brooklyn Plumbing Supply Credit Association, to be held at Karatsonyi's Hotel, Glenwood Landing, with automobiles leaving Trommer's Restaurant, Brooklyn, at 9 a. m.

August 18, 1928.—The second annual outing of the Master Plumbers, Steamfitters and Sheet Metal Workers Association of Elizabeth, N. J. and Vicinity, to be held at the Staten Island Elks Club, Oakwood.

August 18, 1928.—The annual outing of the Salt Lake City, Utah, Association of Sanitary and Heating Engineers, to be held at Lagoon.

August 18, 1928.—The annual outing of the Connecticut State Master Plumbers Association, to be held at Double Beach, Branford, Conn.

August 18, 1928.—The annual outing of the Ladies' Auxiliary of La Crosse, Wis., to be held on Pettibone Island in the Mississippi River.

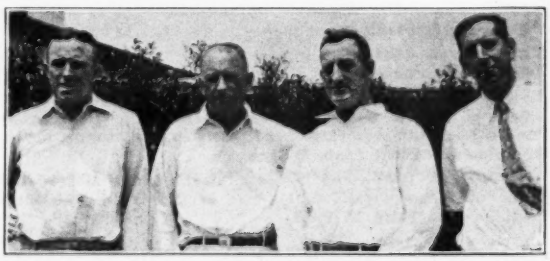
August 19, 1928.—The annual outing of the Range Master Plumbers Association, to be held at Fort Francis, Minn.

August 21, 1928.—The annual outing of the Heating and Piping Contractors Milwaukee Association, to be held at Fox Isle Resort, near Waterford, Wis.

August 22, 1928.—The August golf meet of the Plumbing Contractors' Association of Chicago, to be held at Oak Hills Golf Club.

August 22, 1928.—The annual outing of the Tri-City Plumbing and Heating Trade Development League, to be held at Credit Island, Davenport, Iowa.

August 23, 1928.—Golf meet of the New England Metal Products Golf Association, to be held at the Worcester Country Club, Worcester, Mass.



Edward Keating of E. F. Keating Co., New York City; W. A. Burtenshaw, John Simmons Co., New York City; J. B. Reeves, Peerless Unit Ventilation Co., Bridgeport; R. A. Wolff, Wolff & Munier, Inc., New York City. Photo taken at the June meet of the Eastern Trade Golf Association

Common Sense

YOU can't sell plumbing fixtures where there is no running water. But you *can* sell running water—at a good profit. Then the sale of plumbing fixtures will follow.

DAYTON Water Systems have been "making the water do the running" for twenty years, and the DAYTON line has been a profit-maker for progressive plumbers everywhere. Electric power is rapidly being extended into rural territory. Now is a good time to secure the DAYTON agency.

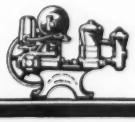
$69.50 F.O.B. DAYTON

The Internationally Famous DAYTON CUB

The Dayton Pump & Manufacturing Co.

Dayton, Ohio, U. S. A.

Dayton WATER Systems



Co. 1928 T.D.P.& M. Co.

"Sheer Comfort" Control

Sells at $27.00 Complete

"Sheer Comfort"

AN Electric Thermostat Heat Control that makes any furnace automatic. Everybody wants it—and you will want to sell it the minute you see it work. The "Sheer Comfort" Control means efficient house heating, savings in fuel, protection of health, and "Sheer Comfort." Positive, accurate, lasting. Priced so you can sell it. Write today on your letterhead for descriptive circular, dealer's prices, terms, etc., or enclose $17.55 for complete sample outfit.

Address Dept. DE.

H. M. Sheer Co. Quincy, Ill.

ESTABLISHED 1880

VALVO

NON-HEATING ASBESTOS VALVE WHEEL

Here is a valve wheel made in ONE piece. It positively will NOT heat up and is unbreakable.

Every wheel is fully guaranteed to withstand common abuses and we will replace any which fail to do so.

Stock Sizes

The VALVO Wheel comes in all stock sizes to fit valves from ½ inch to 2 inch. They are easy to install and once on the valve can be depended upon to give years of service.

Ask your jobber to supply your wants. Put a supply of Valvo Wheels on your showcase.

Jenkins Manufacturing Co.
BLOOMFIELD N. J.

August 23, 1928.—The annual outing of the Master Plumbers Association of Plainfield, N. J., and Vicinity, to be held at Henry Pfaff's roadhouse on the Plainfield Road.

August 23, 1928.—The outing of members of the Lancaster, Lebanon, Harrisburg, Reading and York (Pa.), associations, at a place yet to be selected.

August 23, 1928.—The annual outing of the Association of Master Plumbers of the State of Maryland, to be held at Cottage Grove Park.

August 23, 1928.—The annual outing of the Master Plumbers Association of the City of Trenton, N. J., to be held at the Fair Grounds in that city.

August 23, 1928.—The August meet of the Metropolitan Trade Golf Association, to be held at the Braidburn Country Club, Madison, N. J.

August 23, 1928.—The annual outing of the Associated Master Plumbers of Red Bank, N. J., and Vicinity, to be held at the Villa Richie, 88 Portland Road, Highlands, N. J.

August 25, 1928.—The annual outing of the Warren (Ohio) Master Plumbers Association, to be held at Saybrook, on Lake Erie.

August 25, 1928.—The twenty-first annual family outing of the Master Plumbers' Association, Inc., of North Hudson, N. J., to be held at Maywood Grove, Fairview, N. J.

August 28, 1928.—The annual outing of the Denver (Colo.) Master Plumbers' Association, to be held at Eliches Gardens.

August 30, 1928.—The annual stag outing of the Manhattan branch, Association of Master Plumbers of the City of New York, to be held at Colonial Inn on City Island.

September 7, 8, 9 and 10, 1928.—The annual stag outing of the Wheeling Master Plumbers Association, to be held at George W. Redeker's farm, near Fish Creek, W. Va.

September 10, 1928.—The September meet of the Heating Trades Golf Association of Massachusetts, to be held at the North Shore Golf and Tennis Club, Salem.

September 12, 1928.—The September meet of the Plumbing and Heating Trades Golf Association of New Jersey, to be held at the Braidburn Country Club, Madison, N. J.

September 12, 1928.—The annual outing of the Bronx branch, Association of Master Plumbers of the City of New York, to be held at Colonial Inn, City Island.

September 13, 1928.—The September meet of the Eastern Trade Golf Association, to be held at Essex Falls, N. J.

September 15, 1928.—The first annual outing of the Rhode Island State Association of Master Plumbers, to be held at Plumb Island Beach, R. I.

September 15, 1928.—The annual outing of the Nassau County South Shore Association, to be held at Narragansett Inn, Lindenhurst, L. I., N. Y.

September 19, 1928.—The September meet of the Heating and Ventilating Golf Association of Philadelphia, to be held at the Green Valley Country Club in that city.

September 21, 1928.—Golf tournament of the Western Trade Golf Association, to be held at Glen Oak Country Club, Glen Ellyn, Ill.

September 26, 1928.—The September meet of the Metropolitan Trade Golf Association, to be held at the Wheatley Hills Golf Club, East Williston, L. I., N. Y.

September 29, 1928.—The annual outing of the Queensboro branch, Association of Master Plumbers of the City of New York, to be held at Narragansett Inn, L. I.

September 29, 1928.—The annual outing of the Newark Master Plumbers' Association, to be held at Oakland, N. J.

October 8, 1928.—The October meet of the Heating Trades Golf Association of Massachusetts, to be held at the Sandy Burr Club, Wayland, Mass.

October 15, 1928.—October meet of the Delaware Valley Trade Golf Association, at the Columbia Country Club, Washington, D. C.

October 17, 1928.—The October meet of the Heating and Ventilating Golf Association of Philadelphia, to be held at St. David's Country Club, Wayne, Pa.

October 23, 1928.—The October meet of the Metropolitan Trade Golf Association, to be held at the Wykagyl Country Club, New Rochelle, N. Y.

November 7, 1928.—The November meet of the Heating and Ventilating Golf Association of Philadelphia, to be held at the Pine Valley Country Club, Clementon, N. J.

November 12, 1928.—The November meet of the Heating Trades Golf Association of Massachusetts, to be held at the Unicorn Country Club, Stoneham, Mass.

THE TRADE

NEWS FOR PLUMBING AND HEATING CONTRACTORS

NEW JERSEY ASSOCIATION APPOINTS FIELD MAN

The New Jersey State Association of Master Plumbers has announced the appointment of Edward B. Moore as state field secretary. Mr. Moore, who will be under the supervision of the state executive board and under the immediate direction of President William Chesnut, will assume his duties about September 1. He will, for the time being at least, make his headquarters in Montclair, N. J.

INDIANA DIRECTORS MEET AT WINONA LAKE

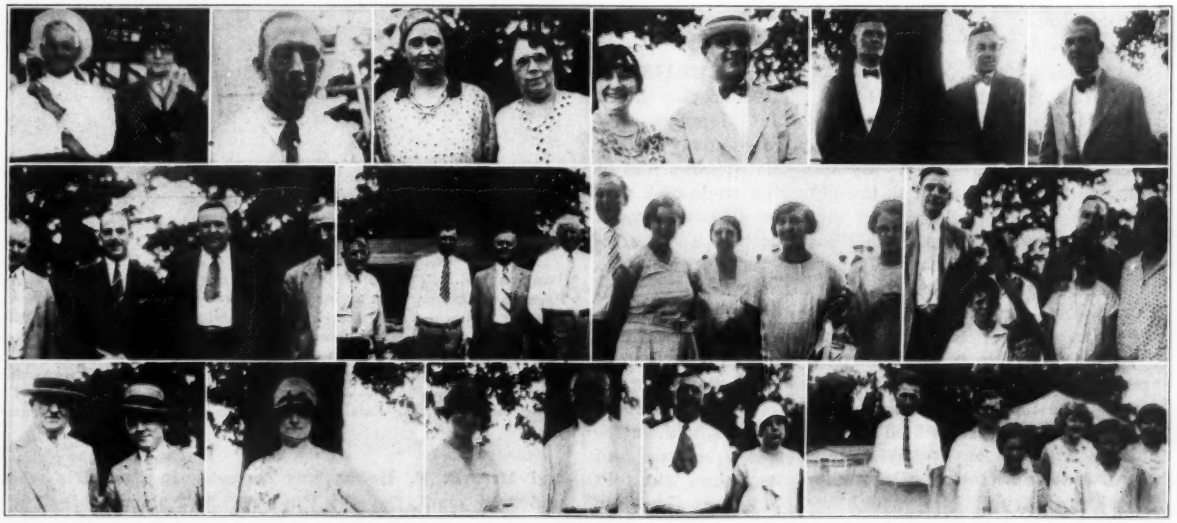
The board of directors of the Indiana Society of Sanitary Engineers held a meeting July 28 at Winona Lake, to discuss plans for the forthcoming membership drive to be held in September under the direction of Victor L. Peavy, field manager of the society. Those in attendance included Arthur Lahr of Lafayette, president; Harry Thompson of Logansport, vice president; Frank E. Irish of Indianapolis, J. H. Daniels of Gary and A. V. Sampsel of Peru.

It was decided that a staff of speakers should precede Mr. Peavy in his membership drive, paving the way toward a larger membership, and that the formal opening of the campaign would be the meeting of the board to be held in Indianapolis on September 1. Mr. Daniels, chairman of the state legislative committee, announced the tentative legislative program of the day, and reported that steps have already been taken to present suitable sanitary legislation in the fall.

LARGE CROWD ATTENDS ST. LOUIS PICNIC

The annual picnic of the St. Louis Association of Master Plumbers was held on August 4 at Ramona Hills Park, near Ferguson, Mo. Despite a sky which was threatening early in the day a large crowd of master plumbers, their families and guests were on hand to celebrate the occasion. The entertainment committee, composed of John J. McCue, chairman, with Franklin Kunz, E. Stumpf, Samuel Burman, J. H. Branch, C. Obert and Frank Wetzel assisting, provided an excellently arranged program of entertainment including baseball and a wide variety of athletic events. An orchestra furnished music for dancers from early afternoon until late at night. Tickets for rides on the park amusements were given to all children on arrival.

Eugene Blake, general secretary of the St. Louis association, was the official starter and ring master for all events. Following the ball game, which was the first number on the program, the athletic events were run off. J. J. Murphy won a jack knife by coming in first in the 50-yard dash for boys from 12 to 16. In the shoe scramble for boys from 8 to 12, Jack Barry won a fountain pen



Top row: Philip Krusz, president of the association, with Mrs. Krusz; Eugene J. Blake, secretary of the association; Mrs. George Rodenheiser; Mrs. E. E. Manahan, president of the St. Louis auxiliary; Mrs. Charles Quinn, first vice president of state auxiliary; Charles Quinn; J. F. Donovan, national executive clerk; E. L. Penfrase, national secretary; Jere Sheehan, Jr., national president. Middle row: Reno Ivey of the Standard Sanitary Mfg. Co., H. K. Browning of the A. M. Byers Co., S. B. Ruff of Wolff Co., and David Peterson of Wolff Co.; J. M. Ward, J. H. Branch, J. J. Noble and John J. McCue, all members of the entertainment committee; J. Frank Murphy, Elizabeth Murphy, Mrs. Pitsch, Mrs. Murphy, Miss Ruth Pitsch and Miss Anna May Murphy; Joseph Lynch, Jack Williams, Joseph Lynch, Jr., Henry Lynch, Mavis Lynch, A. Kops of the Abingdon Sanitary Mfg. Co., and Mrs. Joseph Lynch. Bottom row: Steven H. Gilmore, St. Louis manager of Kohler Co., and George Anderson of that company; Mrs. Frederick Kunz; Mr. and Mrs. William Kuehne, auxiliary vice president; Mr. and Mrs. H. O. Mersmann; Arthur Stein, Mrs. Arthur Stein, Dorothy Stein, Marie Bormann, Marian Stein and Miss Evelyn Bormann

as first prize. The cracker-and-whistle contest for boys over 16 was won by J. Huber, with Jack Barry taking second place. Edwin Hirzy and John J. McCue, Jr., came in first and second, respectively, in the 100-yard dash for apprentices.

Helen Gardner won a necklace as first prize and Virginia Nagel a compact as second prize in the balloon race for girls from 8 to 12. The pie pan-and-potato race was won by Mrs. Huber. Virginia Nixon took first prize in the flour blowing contest for girls from 12 to 16.

The potato race for wives of members was won by Mrs. Carroll with Mrs. George Eichenlaub winning second place. In a ladies' free-for-all football kicking contest, Mrs. F. J. Praechter won first place. Mrs. John Moore was second, Mrs. Max Rollig third and Mrs. E. E. Manahan fourth.

In a walking contest for master plumbers, Thomas J. Gardner won first prize, with John J. Holden, John Moore and August Meyer winning second, third and fourth prizes.

The general attendance prize was won by Ella Gardner. First prize for master plumbers' attendance was won by Franklin Kunz, an enameled iron lavatory. Second prize, a gas water heater, was won by John Mitchell. James Fowler drew a standard range boiler for third prize, and Arthur Stein, a combination sink faucet for fourth.

Among those present were Jere Sheehan, Jr., national president, with Mrs. Sheehan; E. L. Penfrase, national secretary; J. F. Donovan, national executive clerk; L. McNamara, past national president, with Mrs. McNamara and Miss Margaret McNamara; F. J. Praechter, Sr., president of the Missouri state association; John Corrigan, state association treasurer; Philip Krusz, president, P. Finn, vice president, and Bernie Braun, treasurer of the St. Louis association.

The ladies' auxiliary was well represented. Among those present were Mrs. E. E. Manahan, president, Mrs. William Kuehne, vice president, Mrs. A. W. Marx, secretary, and Mrs. H. Bartosch, treasurer of the local auxiliary, and Mrs. Charles Quinn, first vice president of the state auxiliary.

SOUTHERN CALIFORNIA MASTERS ENTERTAINED

The Day & Night Water Heater Co., Monrovia, Calif., entertained about one hundred merchant plumbers at a dinner and factory demonstration at the company's plant on the evening of Tuesday, July 31. The occasion was to signalize the introduction to the plumbing trade of a new automatic storage water heater, and also to announce to the trade that the company had engaged in the manufacture of a mechanical water softener, both of which were displayed and explained at the conclusion of the dinner. The factory was started up for the occasion and the guests were conducted through its several departments.

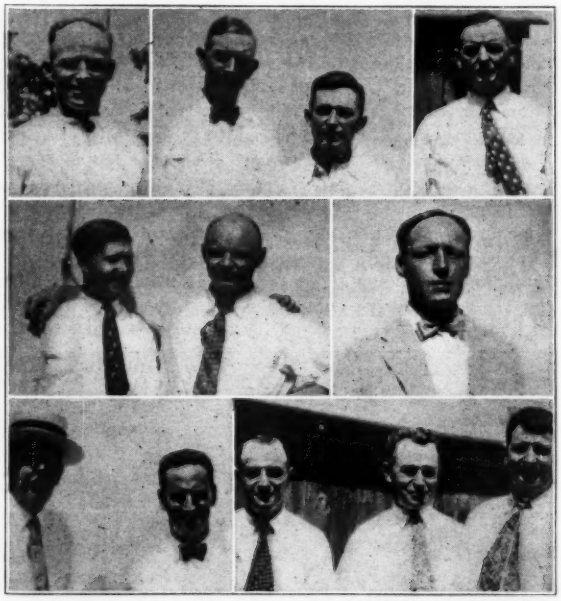
Tables were set in the shipping room of the factory and dinner was served at 7 p. m. Frank P. Mullen, president of the San Gabriel Merchant Plumbers Association, under the auspices of which the meeting was held, introduced C. R. Hutton of Los Angeles, past president, and now executive secretary of the state association, who told the assembled plumbers something about what the state and national associations were doing for the industry, and introduced John R. Denning, manager of the Los Angeles office of the Plumbing and Heating Industries' Bureau, who addressed the meeting with an exposition of the work which the bureau is undertaking in Southern California, ending with an earnest plea for associational co-operation. Mr. Denning was followed by a short talk from Lawrence Stuffler, past president of the Los Angeles Merchant Plumbers Association.

NORFOLK OUTING A BIG SUCCESS

The fifth annual excursion and picnic of the Plumbing and Heating Industries of Tidewater, Va., was held this year at historic Yorktown. About 250 people met at the pier and prepared for the day by bringing basket lunches, and settling down to a cool four-hour boat ride, while the orchestra played. Some of the more active of the party danced in spite of the heat, while others played cards and deck games, and others sat and enjoyed the scenery and cool breeze.

On arriving at Yorktown, Executive Secretary C. F. DeLaBarre had a full program arranged that kept all in a happy frame of mind. The first race was the men's 100-yard dash, which was won by F. A. Hallaman. J. W. Taylor came in second. The broad jump for men was also won by F. A. Hallaman. Mildred Craft won the girls' broad jump, and second place was won by Virginia Stebbens. The three-legged race was won by R. S. Cramer and J. W. Taylor. Virginia Stebbens came in first again in the ladies' 50-yard dash, and Mrs. C. F. DeLaBarre was second.

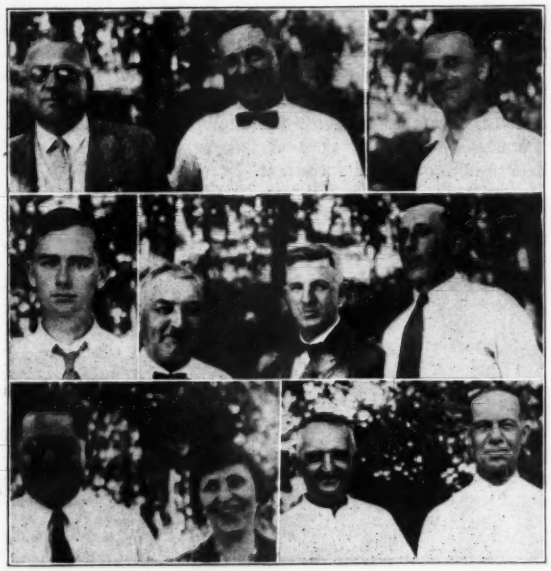
The potato race was won by Mildred Craft, and second place was won by Mrs. C. F. DeLaBarre. In the married ladies' 50-yard dash, Mrs. DeLaBarre came in first again,



Top row: W. E. Coley of Norfolk, state president; Past state President James E. Carper of Salem, and F. E. Hobbs, Norfolk president; L. V. Paschall of Durham, N. C., past president of North Carolina association. Middle row: W. D. Sams; C. F. De LaBarre, executive secretary of Norfolk; B. Y. Kinzey, state field secretary. Bottom row: A. R. McGonegal, plumbing inspector of Washington, D. C.; Robert Scott of the American Radiator Co.; Samuel Perlin, John J. Shanahan and E. Graham

and Mrs. F. E. Hobbs was second. In the girls' race under 14 years, Dorothy Rust won first place, while Lucy Rapp won second. H. Laibstan won first prize for boys under 14 years and Cecil Hobbs won second. The boys' shoe race was won by Wendell Frazell, and second place was won by Edward Frazell. The 100-yard walking race for men was won by B. Gildersleeve, and V. Stell won second prize.

The nail driving contest was won by W. L. McGee, while T. M. Rust won second. The specialty race, which was a cracker-eating contest, in which the master plumbers were



Top row: P. J. Frey, president of the Central Supply Co., Minneapolis; Axel F. Peterson, president of the state association; Ernest Bossard, chairman of the picnic committee. Middle row: John T. O'Donnell, St. Paul secretary; J. E. Holt of St. Paul, W. W. Hughes of Minneapolis, and H. C. Nonnemacher, president of the St. Paul association. Bottom row: Mr. and Mrs. H. Merwin Porter of Minneapolis; Fred A. Beier, former national director; L. F. Nienaber

lined up and each required to eat three soda crackers, and after eating same to whistle. This caused some fun, as water was low and the contestants put on an exhibition for those present with the gestures they went through. The contest finally resulted in a tie between H. Hungate and V. Stell, who raced it out and V. Stell won.

The master plumbers and jobbers engaged in a ball game in which the plumbers, through the excellent pitching of President W. E. Coley and hitting of C. F. DeLa Barre, Stell and Emanuelson, proved too much for the jobbers, although Robert Scott of the American Radiator Co. did knock a homer, and Robert Crane of Crane Co. and William Achiss of the Standard Supply Co. tried hard to swing victory their way. This ended the sports for the day and at 6 o'clock the boat left for Norfolk. Again deck games and dancing were in order. Everyone seemed, as they got off the boat, to be well satisfied with the outing. Ex-President J. E. Carper and family motored down from Salem, Va., as did Ex-President L. V. Paschall of Durham, N. C., who expressed pleasure at being present. B. Y. Kinzey, state secretary, drove down from Richmond, and was glad to see such a fine turnout. The committee gave out the prizes to the winners of the races on the way back and Inez Hobbs and Dempsey Wilkins gave a specialty dance that all enjoyed.

ST. PAUL MASTERS PICNIC IN HEAT

The St. Paul Master Plumbers' Association held its annual picnic Wednesday, August 8, at Orchard Lake. The day was one of the hottest of the year, and the large crowd of master plumbers, supply men and their wives and families availed themselves to a great degree of the facilities for bathing in the lake.

In spite of the heat, the elaborate program of sports and entertainment prepared by the committee was carried out. The committee, composed of Ernest Bossard, chair-

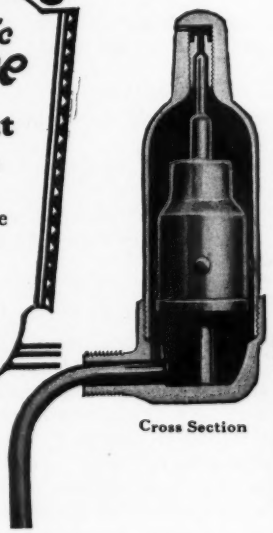
THE
"Air-Out"
Syphon Thermostatic Air Valve

A Large Float

Heavy Cast Brass Base

Free sample valve for testing for the asking

All metal, non-adjustable



Cross Section

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HYDROLATOR
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Quiet and dependable. Intermittent operation. Does not block natural flow of water when not running.

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The only relief valve with an external phosphor bronze spring. Can be adjusted at any pressure required on the job; when maximum pressure adjustment is reached, you will hear the Nelson Relief Valve click. Yet cannot be converted into a plug; rubber washers are eliminated.

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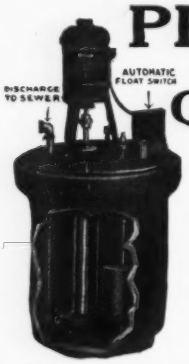

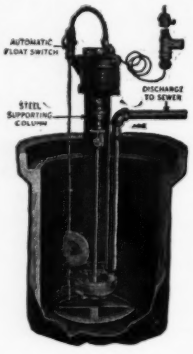

No. 1 . . No. 2

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UNCONDITIONALLY GUARANTEED
Fuel Oil Storage Tanks

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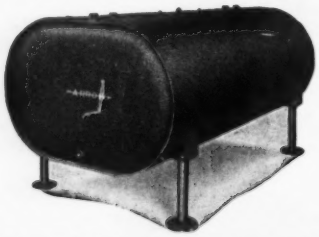

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E-Z
RADIATOR HANGER

for ALL Tube Type Radiators

The most complete stock on the market—ready for immediate shipment from principal cities. Use this strong, simple, one-bolt hanger. It pays to insist on the E-Z.

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770 Hampden Ave. St. Paul, Minn.

man, Anthony Schmidt, Arthur F. Heuer and Thomas Shetka, worked diligently on the plans for the outing, and its success was measured by their efforts. Among the events scheduled for adults were the kitten ball games, tug-of-war, ladies' and men's race, married ladies' ball throwing contest, women's balloon fanning contest, women's balloon blowing contest, single and married men's races and apprentice's contest.

Top row: Frank Boucher, Catherine Boucher and Donald Hughes; G. W. Anderson, St. Paul treasurer; T. F. Shea; J. M. Donovan of the Kellogg-Mackay Co. Middle row: Andrew Nelson; Mr. and Mrs. Fred Stiller, Mrs. and Mr. O. G. Johnson, all of Minneapolis. Bottom row: O. R. Manners of the Manners-Motz Co.; E. S. Gifford; F. Lonergan of White Bear, Minn.; Adolph Shetka; F. R. Monick of the Cochrane Sargent Co. Photos taken at the annual outing of the St. Paul association

The children also came in for their share of the enjoyment. There was a plentiful supply of ice cream cones and crackerjack available, as well as a number of contests.

These included 25-yard dashes for boys and girls of different ages, 50-yard dashes for boys and girls of different ages, boys' free-for-all leap frog race, girls' free-for-all hop race, and a ball rolling contest for children under five.

Dancing ended the day's enjoyment, and "Domestic Engineering" balloons added much to the festivities of the dancing.

John O'Donnell, newly elected secretary of the St. Paul association, was active in taking care of the wants of the picnickers, and everyone left Orchard Lake with the feeling that another outing of the association had been a big success.

ASSOCIATIONS PLAN ANNUAL OUTINGS

The Warren (Ohio) Master Plumbers Association will hold its annual outing at Saybrook, on Lake Erie. The date selected for the event is August 25, and the following members of the committee are planning for the affair: Harry H. Shafer, George F. Thompson, V. E. Baldwin and E. C. Daugherty.

State President George W. Redeker of Wheeling, W. Va., will entertain the annual stag outing of the Wheeling Master Plumbers Association, at his farm and country home near Fish Creek, W. Va. The members of the association always look forward to this affair, and this year plans are made to have it a four-day party, starting on September 7 and lasting until the tenth. Robert Totterdale, Charles Sharp, H. E. Neumann, William Eckhard and Bernard Reilly are the members of the committee in charge of the affair.

SOUTHERN DUPAGE COUNTY ASSOCIATION IS ACTIVE

W. D. Scovill, engineer and secretary of the Southern DuPage County Master Plumbers and Steamfitters Association, visited the offices of "Domestic Engineering" while in Chicago recently. Mr. Scovill has been with the association for a little more than a month and is very much pleased with the progress his organization is making. He says that a credit system is being installed for the use of the members and that an active advertising program is planned for the future. Mr. Scovill is an old-time master plumber and experienced in organization work, having been president of the Sacramento (Calif.) association for seven years.

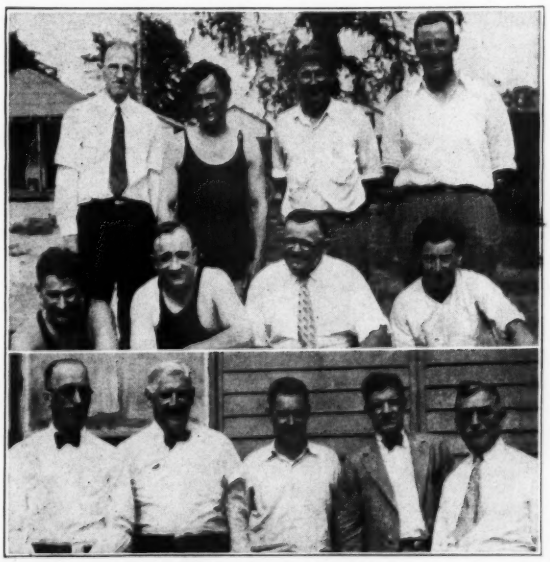
MACOUPIN AND MONTGOMERY MASTERS PICNIC AT GOLF CLUB

The annual outing of the Macoupin and Montgomery Counties Master Plumbers Association was held August 4 at the Gillespie Country Club, Gillespie, Ill., through the courtesy of H. McPherson, president of the association from that city. A large crowd was on hand for the affair, and enjoyed themselves with the various diversions offered, some preferring to swim, others to row boats and still others to play golf and tennis. Among those who went around the golf course were Mr. McPherson, Carl Lang of Mt. Olive, secretary of the association, and H. Hopper and J. W. Erseman, both of Staunton.

The following were members of the committee which arranged the outing: J. W. Erseman of Staunton, J. Smith of Gillespie and C. Schlowmann of Mt. Olive.

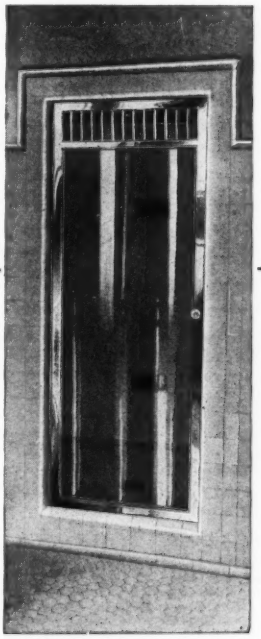
SOUTH BERGEN MASTERS PICNIC AT OAKLAND

The annual outing of the South Bergen Master Plumbers' Association was held at Oakland, N. J., on Thursday, August 1, a large attendance of master plumbers, their wives and children, and salesmen guests being on hand. The crowd started in the early morning in automobiles,



Top picture: The committee, back row; Charles H. Koster, William J. Wilson, Carl Gland and William Henderson; front row, Andrew Topp, Michael Hobin, Fred Margeit, president of the association, and Albert Mitchell. Bottom picture: Charles J. Samuel of Montclair, state secretary; A. A. Tnaffe of Newark, former national director; George Bird of Elizabeth, past state secretary; A. C. Krieger of North Hudson; William Chesnut of Montclair, state president

C & S Shower Doors



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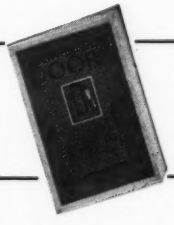
C & S Shower Doors and Shields have the added advantage of combining beauty and service. They will last for years and they are really a necessity to every properly installed shower job.



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If you wave aside the claims we have made about the Sarco, you discount the sagacity and the shrewdness of these 19,000 men who have built solid successes in business with the same keen judgment that prompted them to buy Sarco Traps and Valves.

In the face of indisputable evidence like this, isn't it at least worth while for you to find out more about Sarco Traps and Valves? Why not write, while you think of it, for a copy of our Booklets M-110 and M-155.

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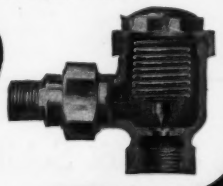


Top row: Irving Wendling, L. S. Gilbert and E. M. Robinson; Mrs. F. C. Braak; Mrs. Andrew Topp, auxiliary vice president; Betty Topp; Mrs. W. J. Wilson, auxiliary president; Miss Ann Fischer; Mrs. F. Margeit, auxiliary trustee. Bottom row: Entrants in the fat men's race; the winning broom polo team—back row—G. Hollenbeck, G. Stevenson, R. L. Anderson of the Alberene Stone Co., and Carl Gland; front row—I. B. Meyers of the Lincoln Supply Co., F. Zanca and W. Massie of the Alberene Stone Co. Photos taken at the annual outing of the South Bergen association

dinner being the first thing on the day's events. This over, many got into bathing suits and tried the water in the river, while others prepared for the field events.

The first of these was the broom polo match between the masters and the salesmen, the former winning by the narrow margin of 3 to 2. Then the committee, which was made up of Charles H. Koster, William J. Wilson, Carl Gland, William Henderson, Andrew Topp, Michael Hobin, Fred Margeit and Albert Mitchell, lined up the contestants for the sack race, the two heats being later won by W. H. Wilson, Jr., and John Stevenson. Young Wilson, who is the son of William J. Wilson, also scored in the three-legged race, his partner being Robert Mahon.

The attorney for the association, Wessell Groenendyke, proved to be the fastest of the fat men present, and Mrs. P. C. Braak was the fleetest footed of the ladies. Raymond Rosenthal took first prize in the children's race and Jeanette Topp and Richard Wilson were the cleverest

Top row: Charles Fredericks, of S. L. Snyder Co.; W. N. Groenendyke, association attorney; M. J. Halpin of the Crest Mfg. Co., and Richard J. Siedorf of W. V. Egbert Co. Bottom row: Harry Blauman, Frank Boyd, Richard Donaldson and Harry Herman. Photos taken at annual outing of South Bergen association

children at catching a "hot dog" dangling from a fishing line. The Wilson family was again represented when the high dive was put on, Donald Wilson taking the honors.

Then came the traditional ball game between salesmen and masters, for a silver cup. The salesmen led all the way, the game being increased from five to seven innings in order to give the masters a chance at the prize. Anderson, Fullerway, Robinson, Lehman, Leach, Massie, Freer, Jones, Krebel and Wendling performed for the salesmen, and the plumbers put Hobin, Henderson, Gland, Hallenbeck, Mitchell, Langner, Zanca, W. J. Wilson and Bird in the field.

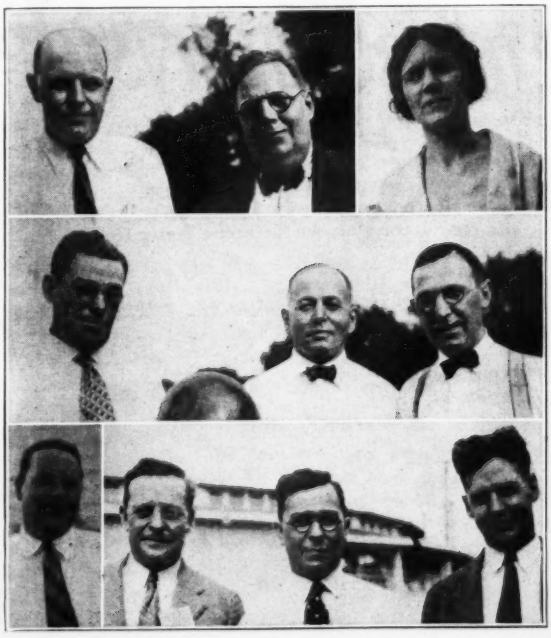
The affair ended with a big supper and the pleasant drive back to the southern section of Bergen county.

RAIN FAILS TO HALT KANSAS CITY PICNIC

The annual picnic of the Kansas City Master Plumbers Association was held Saturday, August 4, at Fairyland Park, one of the city's places of amusement. More than five hundred were present, in spite of the recent rain and threatening sky. The baseball game was called off on account of wet grounds, but the usual races and sports for the children were held and many attractive prizes were contested.

Peanuts, pop, ice cream and candy were furnished in abundance for the children, besides plenty of tickets for the park's fun making attractions. The picnic dinner was held in the evening when all sat down as one large family and ate from the well filled baskets prepared by the ladies. Local manufacturers' representatives and the officers of local wholesale houses were guests of the master plumbers.

The picnic committee, consisting of J. E. Justus, J. S. Levene and E. A. Kubler, was given a vote of thanks for its efforts, which went a long way toward making the day a success. Many of the more timid did not venture out to



Top row: William Ball, president of the Kansas City association; F. F. Dodds, Kansas City manager of the American Radiator Co.; Mrs. W. C. Knox, president of the Missouri state auxiliary. Middle row: D. E. Justus, J. S. Levene and E. A. Kubler, the picnic committee. Bottom row: William J. Hebenstreet, Kansas City manager of the Kellogg-Mackay Co.; C. L. Deming of the Baker Mfg. Co.; E. T. Spaeth; J. S. Bailey of the Baker Mfg. Co.

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WISECO PRODUCTS
in Genuine
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Made without solder and of the very finest virgin metals, Bullard Roof Flashings are proofed against loosening up or pulling apart. Buy them from your jobber.

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Automatic All Metal *Non-Adjustable Thermostatic*

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SMOOTH ball-bearing action. Patented "Samson" Lock, which makes Paragon handles easiest to adjust without special tools. Longer wear — better action. A wide variety of bodies and handles. Write for folder on the complete line.
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PARAGON DIVISION CLEVELAND O.

the park until late in the evening after all signs of rain had gone, but they were not too late to spend an enjoyable evening visiting with other members of the plumbing and heating fraternity.

AMEND WISCONSIN APPRENTICE RULES

State rules relating to the employment of plumbing apprentices have been amended by the Wisconsin state board of health to meet new conditions arising in the past few years in the learning of the plumbers' trade. Hereafter, apprentices, both indentured and unindentured, will be required to register with the state board of health, setting forth when apprenticeship began, age, and other information, as a condition to applying for an apprentice license.

Violation of an indenture contract, according to new rule, is ground for revocation of the license. It is expected that these changes will make the indenture system easier of enforcement.

There are nearly 500 indentured apprentices under contract whom the employer agrees to teach the trade, and the apprentice agrees to serve a five-year contract. There are in addition nearly 500 apprentices over 21 years, for whom indenture is not required, who are learning the trade of plumbing.

In Milwaukee and other cities giving instruction in plumbing in vocational schools, the applicant for an apprentice license must attend school for not less than 400 hours. Where such instruction is not available, the applicant may take a correspondence school course certified by the state board.

He is also required to have experience in assisting in installing plumbing materials under the supervision of a journeyman or master plumber.

HOME MODERNIZING MOVE STARTED IN SAN FRANCISCO

Plans looking toward the organization of a Home Modernizing Bureau in San Francisco, to be affiliated with the national organization whose headquarters are located in Chicago, were discussed at a meeting attended by representatives of all branches of the building trades. held at the Palace Hotel, August 3.

J. C. Keene of the San Francisco office of the Plumbing and Heating Industries' Bureau gave some concrete examples of the advantages of modernizing and how the idea spreads rapidly when such work is undertaken in a given section of a metropolitan area. He also spoke of the vast potential markets offered by modernization work and how the plumbing and heating man may profit thereby.

Howard W. Finch, manager of the San Francisco branch of Kohler Co., offered wholehearted encouragement to the proposed idea, giving assurance that his company's policy was in accord with the plan.

Fred C. Eckardt of E. A. Cornely Co., also representing the local chapter of Plumbing and Heating Salesmen, gave an interesting talk relating to the installation of a modern heating system in a 70-year-old home in San Francisco, and how much it meant to the owners.

With the idea of effecting a permanent organization, the following named men were asked to serve on a preliminary committee: H. W. Finch, plumbing division; Thomas Douglass, manager of the Heating and Piping Contractors San Francisco Association, heating division; H. N. Carroll of the Great Western Power Company, electrical division, and Fred Roth of the MacCallum Lumber Company, building materials division. J. C. Keene consented to act as chairman of the committee.

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You do not have to confine your selling efforts on Holyoke Water Heaters to any restricted area. For the city, the Holyoke Gas Water Heater can be pushed, and for the suburban districts and farms, the Holyoke Kerosene Water Heater is incomparable.
Study the construction of Holyoke Heaters and you will at once understand why they are superior.
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RHODE ISLAND MASTER PLUMBERS CONTINUE STATE ORGANIZATION

The master plumbers of Rhode Island, who first started to organize a state association some six or seven months ago, have carried on their good work. There are about 100 members at present and the membership is still growing. The newly elected officers of the association are as follows: President, Maurice P. Burnside, North Scituate, R. I.; vice president, Charles F. Murphy, Newport; secretary, William J. Fogarty, Providence; treasurer, Joseph F. Williams, Providence; clerk, John R. McGee, Bristol.

The board of directors consists of Frank Seymour of Warren, Charles H. Davies of Westerly, Raoul Renaud of Woonsocket, and John Drysdale of Providence.

Fred Owens of Warwick, Frank Mereweather of East Providence, Abe Mistafsky of Providence and Thomas Russell of Newport were appointed the credentials committee. John Drysdale has been appointed chairman of a special committee to consider and try to arrange a joint convention and plumbing conference with the Massachusetts, Maine and Connecticut associations, this conference to be held at Providence. The intention is to stimulate interest in the new association, strive to obtain additional members, and to promote co-operation. This same committee is planning on co-operating with the state health authorities to make a new set of state laws. Assisting John Drysdale are the following members of the committee: Joseph Williams of Providence, Abe Mistofsky of Providence, George Reinert of Parret, Harry Dauphine, Jr., of Providence, Frank Mereweather of Providence, Archie Bushwell of Providence, James Hunt of Pawtucket, Joseph Pheonix of Pawtucket, Charles Davies of Westerly, Fred Harvey and Raoul Renaud of Woonsocket, Frank McMire and Abe DeMarrius of Bristol.

DAYTON ASSOCIATION HOLDS LARGE OUTING

About 200 members of the Dayton Master Plumbers' Association and representatives of plumbing manufacturing and supply firms picnicked Wednesday afternoon, August 1, at Ebber's grove, Wagner Ford road, near that city.

The principal athletic event was a baseball game between the master plumbers and supply men. The plumbers won by a score of 14 to 9. Several boxing contests were on the program, and various other amusements were also held.

As an appreciation token of the services he has rendered as chairman of the labor committee, the gas committee and a member of the entertainment committee, the association presented William J. Brink with a fountain pen desk set. Melvin Ganger, president, made the presentation on behalf of the association.

Samuel Fahrer is chairman of the entertainment committee, which made the plans for the outing. Other members are William J. Brink, Henry Grimes, Roland Foerste, R. J. Makarius, E. J. Loewer and Lorentz Hand.

The Local Association

*By Chas. J. Samuel, Montclair, N. J., Secretary of the New Jersey State Association of Master Plumbers**

THE building up and the operating of the local association in such a way that each member may receive the greatest possible benefit from it is of the utmost importance. Much constructive work can be accomplished, many of our problems can be and are solved through co-operation and by concerted effort of members who are being helped in this manner, and who in turn are furnishing ideas to their fellow associates, gained by practical experience and knowledge.

To keep an association running smoothly and successfully, the interest of the members must be kept alive at all times. It is unfortunately true that only a few men in most organizations are willing to put enough time and effort into this work and to make personal sacrifices to keep the wheels running, but these comparatively few working together intelligently can at least influence conditions.

Too many association members belong on the theory of "pay your dues and forget it." They may be getting out of their association all they put in it, but they are not getting all they can get out of their membership. What is needed is interest, co-operative activity, ideas, and above all, intelligent follow-up of the trail-making work of the association. Each member should follow up the vital educational work of the association with his own. He should make free use of the ideas it develops, because the ideas are ammunition which will win his own individual business battles.

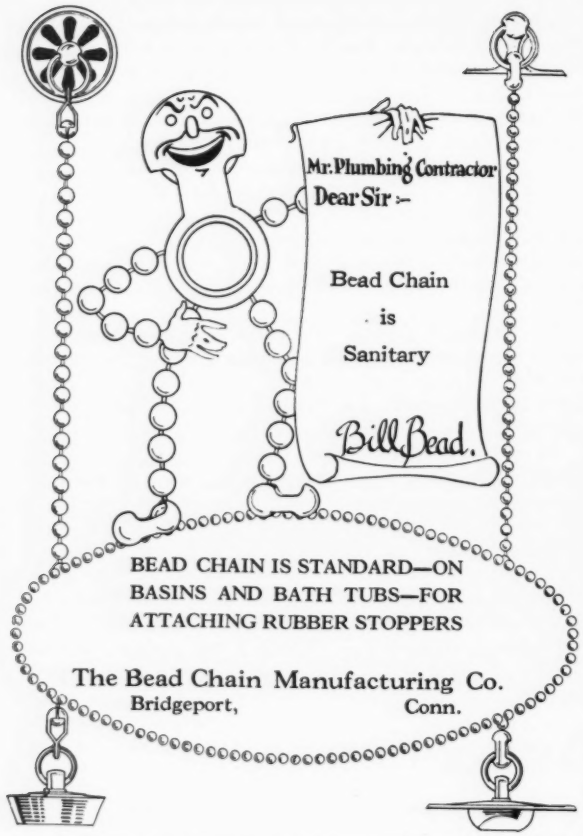
I believe there should be several active committees created and at work on some definite objective at all times, and that all members should be included on these committees. This is most important and is necessary to keep the interest of all alive all the time. Great care should be taken in selecting the chairman of each committee, for an energetic, willing and capable chairman can secure wonderful results, while one who is not inspired by this work cannot obtain the co-operation that makes for success. Only the president of the organization knows how discouraging it is to him when a committee fails to function satisfactorily. Success can be attained, if the committee is willing to work hard enough.

Of utmost importance, and he comes first, is your secretary. Nothing will disrupt an association or cause your members to lose interest as will a secretary who is careless and negligent in the performance of his duties—a man should not be appointed secretary who does not like that task, who is not inspired by his work, who is not willing to give the necessary time that will be required to do the work that will be necessary, to attend to all communications promptly and in fact to be on call at all times, for that is part of any good secretary's duty.

Now in order to do this very thing properly a paid executive should be employed either on part time or full time. It is asking too much of an active master plumber to do this, although I know there are some who are willing to do it. It is asking them to sacrifice too much of their time to the detriment of their own business. Many associations in our state can afford and ought to employ a full time paid executive secretary. The few organizations who do employ such a man would not dispense with him for anything and wonder now how they ever got along without one.

Those of us who are actively engaged in our trade (and most of us are), are primarily interested in the plumbing and heating industries. The problems or troubles of the

*Essay presented at the annual convention of the New Jersey State Association of Master Plumbers, held recently at Asbury Park, N. J.



BEAD CHAIN IS STANDARD—ON BASINS AND BATH TUBS—FOR ATTACHING RUBBER STOPPERS

The Bead Chain Manufacturing Co.
Bridgeport, Conn.

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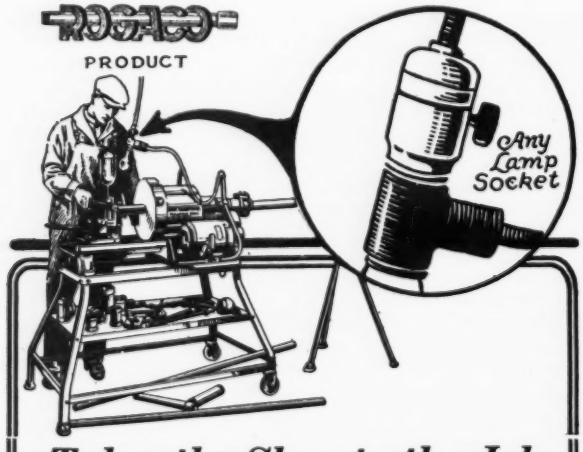

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master plumber and heating contractor will be solved and corrected only through the actions and efforts of the men engaged in these industries. Outsiders will not do it for us. Results will come only through right sincere thinking, working together, earnest effort and hard work.

SPEECHES ELEVATE INDUSTRY IN SOUTHERN CALIFORNIA

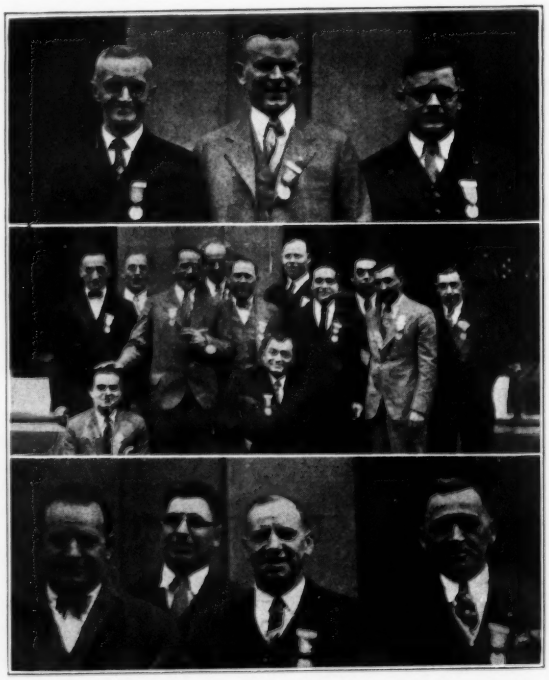
The plumbing industry of Southern California is being called to the attention of men who hitherto have given it scarcely a thought, through appeals that are being made to them by talks before service clubs, building exchanges and salesmen's meetings.

John R. Denning of the Plumbing and Heating Industries Bureau, with headquarters in that territory, believes that one of the most important groups he is called on to talk to is the salesmen of the jobbers and manufacturers of plumbing supplies. He has done a lot of this during the last two months and says that by interesting the salesmen in the work of the bureau he can induce them to spread the good gospel among the customers upon whom they call.

COAL CONGRESS TO BE HELD IN PITTSBURGH IN NOVEMBER

H. B. Rust, president of the Koppers Company, has accepted an invitation to serve on the advisory board for the Second International Conference on Bituminous Coal, according to an announcement just issued by Dr. Thomas S. Baker, president of the Carnegie Institute of Technology.

The coal congress will be held under the auspices of the Pittsburgh educational institution during the week of November 19, 1928. About 75 fuel chemists, engineers, and scientists, representing 15 different countries have already accepted invitations to address the sessions.

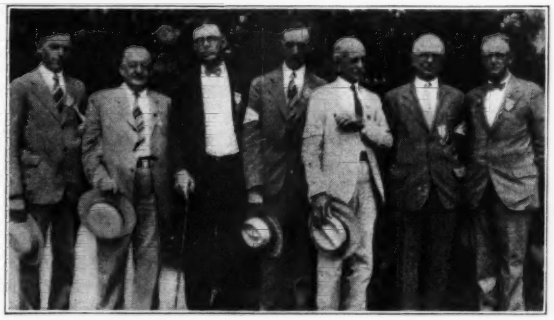


Top row: Jacob Brenner, A. A. Ashmutz, Fred Kaercher, all of Youngstown.—Middle row: Group of members of the Master Plumbers' Progressive Club, Cleveland.—Bottom row: Frank Boll, A. M. Byers Co.; George W. Bachman, John M. McGowen, Fred J. Fausch, all of Akron.—Photos taken at the recent convention of the Ohio Master Plumbers' Association

INDUSTRY MAKES PROGRESS*

When we consider the plumbing and heating industries today as compared with the past, we are astounded at the progress that has been made, and particularly so in the last few years.

Progress, like all other things, doesn't just happen. Although at times it may seem so, back of our progress can be found education, study, slow but definite analysis, and last but most important, intelligent application. We have today one outstanding example in our automobile industry. The prosperity in this business did not drop from the skies; some thinking persons about fifteen years



Officers of National Association of Plumbing Presidents and Secretaries: Fred Fleishauer of Buffalo, director; Christian Bachofer of Reading, Pa., director; Bert Ebersole of Hutchinson, Kans., director; Edward Bohn of Cleveland, Ohio, secretary; John H. Keane of Pittsburgh, Pa., president; R. H. Pflug-Felder of Philadelphia, vice president; Thomas E. Harkey of Wichita, Kans., director

ago saw what would happen and saw to it that roads were prepared and connected up. Why? Because automobiles without proper roads would have been useless, and the automobile industry's progress would have been held up for years.

What does the above imply? Just this: that, today, organization, which is co-operative collective effort, makes possible what it always has done and always will do, namely, progress. However, it might be wise to come a little closer to our own immediate problems and investigate how we have arrived at our present, too often glorified standing, as we have it today. Let us be honest with ourselves and face the facts, not what we think or hear, but facts. We can trace our definite move in advancement to about ten years ago.

We have had better laws giving us legal protection; not sufficient I will admit, but the best we've ever had. The education of our apprentices and journeymen (not forgetting our retailers, indeed, we might include our manufacturers and wholesalers as well), for education in our industries was a general need, particularly along certain lines, merchandising being one.

The most important question today is, how shall we proceed? Having been aroused to the situation, we would do well to go carefully, so as to avoid unnecessary and regrettable retracing of steps. To retrace one's steps is a double loss, because our morale is also lowered as well as vision dimmed and blurred. Therefore, we should guard against and consider the many things that may retard progress while thinking of the aims to aid it. To be forewarned is to be forarmed.

It will be readily admitted, I presume, that to succeed

*Address made by John H. Keane, secretary of the Pittsburgh association, and president of the National Association of Plumbing Presidents and Secretaries, at the recent convention of that association in Memphis, Tenn.

The contractor receives a written guarantee on the heating capacity of every Capitol boiler

Guaranteed Heating WITH
Capitol Boilers
AND RADIATORS

UNITED STATES RADIATOR CORPORATION · DETROIT, MICHIGAN
6 Factories and 32 Assembling Plants Serve the Country
For 37 years, builders of dependable heating equipment

THE "EAFCO"
NEW STYLE
PHILADELPHIA
REGULATION
VENT BOX

Made sturdily, of the highest quality cast iron, "Eafco" new style Philadelphia regulation vent boxes practically last forever.

ASK YOUR JOBBER

B-45

Eastern Foundry Company
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Tank Fittings of Quality

1856 "McSHANE" 1928

The ORIGINAL Compound Lever Ball Cock. Elevated, Low-Down, Top and Bottom Supply Tank Levers and Valves.

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RAYMOND
Lead Roof Flanges

Be sure you get the genuine Raymond Lead Roof Flange for easy installation, tight fit and longest life.

They're made from the highest grade, purest lead by a special process that assures you the finest flashing.

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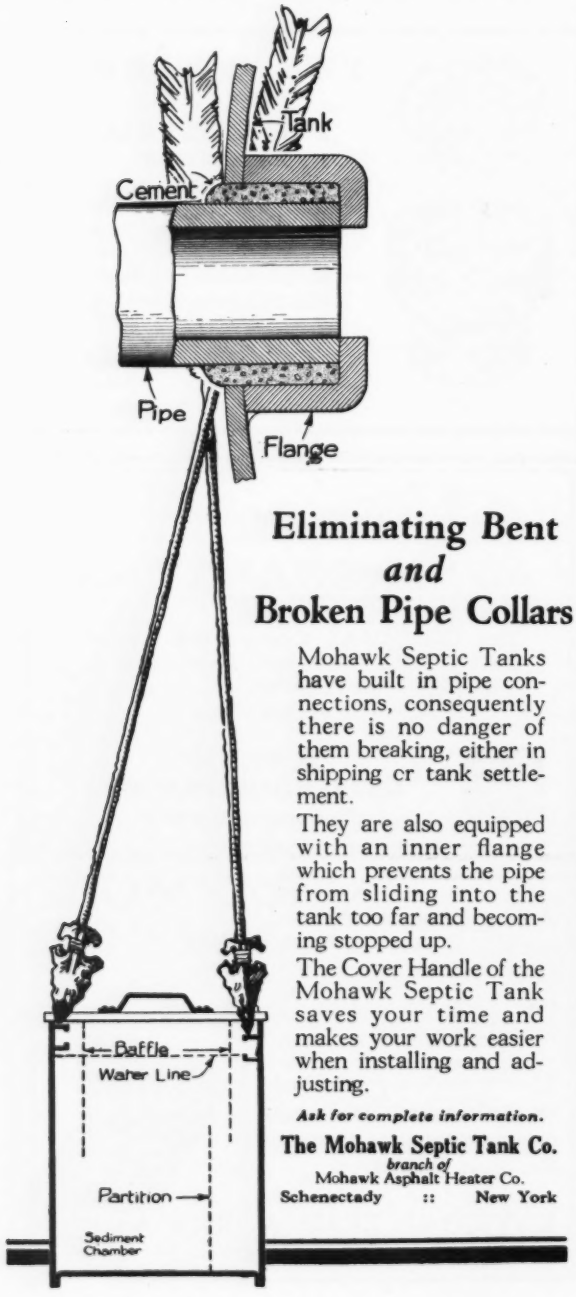
900 West Eighteenth Street • Chicago, Ill.

MOHAWK SEPTIC TANKS

HAVE BUILT-IN PIPE CONNECTIONS



Eliminating Bent *and* Broken Pipe Collars

Mohawk Septic Tanks have built in pipe connections, consequently there is no danger of them breaking, either in shipping cr tank settlement.

They are also equipped with an inner flange which prevents the pipe from sliding into the tank too far and becoming stopped up.

The Cover Handle of the Mohawk Septic Tank saves your time and makes your work easier when installing and adjusting.

Ask for complete information.

The Mohawk Septic Tank Co.
branch of
Mohawk Asphalt Heater Co.
Schenectady :: New York

we must have a uniformity of thought as to our purpose, a uniform plan and uniformity of action. This being so we must have one directing head to govern our activities. Those directing our efforts must be the best we can possibly obtain, having the necessary ability, education and experience.

One common wasteful practice in our industries today is a duplication of endeavor. We have groups under different names doing exactly the same work, calling it all sorts of things, and, when you analyze it, we find it could all come under one head and above all, could be done at one-half the cost.

Having brought the foregoing to your attention for your thought and consideration, I would suggest that we curtail our efforts only to that which comes under our immediate jurisdiction as presidents and secretaries, being careful not to duplicate the work which is already being done.

I feel I am not over-stepping my boundaries when I say that today we are fortunate in having one of the best organized associations' bureau in the country. Therefore, I would recommend that we give serious consideration to all recommendations brought before us and see to it that we are not encroaching on work already being done by the bureau and in all likelihood being done better than we ourselves could do it.

I believe that we are today upon the threshold of one of the most prosperous times for our industries, and we as presidents and secretaries, can do much to encourage amongst our local members, methods which will undoubtedly mean for the making of better retailers, educated to merchandise along modern lines.

Top row: Ernest Steppe of C. S. Mersick & Co., New Haven; Edw. Leach of Alberene Stone Co.; Robert Chilstrom of Asier Mfg. Co.—Middle row: W. S. George of Woodward-Wanger Co.; Daniel M. Coss of Waterbury; W. G. Russell of Wolverine Brass Works; B. W. Erk of American Brass Co., Waterbury.—Bottom row: John Rowe of J. B. Wise, Inc.; William Duffey of Plimpton & Hills Corp., Hartford; E. W. Taylor of Hartford; J. F. Flannigan of Eastern Supply Co., Hartford.—Photos taken at the recent convention of the Connecticut Master Plumbers' Association

Woman's Page

News items and stories that appear in these columns from time to time show the activities of women in the industry and what they are doing toward its progress. A notable example was the account some time ago of one woman in Pennsylvania, the wife of a plumbing and heating contractor, who is doing a good deal toward the advancement of the business. These columns are always available for news stories of this sort as well as the news and happenings in the women's auxiliaries.

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Directors and Committees of National Auxiliary Announced by President Mrs. Hornbrook

Mrs. E. D. Hornbrook of Kansas City, Mo., president of the Women's Auxiliary to the National Association of Master Plumbers, has recently announced the board of directors and committees for the auxiliary for the forthcoming year. The board of directors is composed of the following ladies: Mrs. John Corcoran of Jersey City, N. J.; Mrs. Charles Koegal of Jacksonville, Fla.; Mrs. Ralph S. Butts of South Paris, Me.; Mrs. James M. Carper of Salem, Va.; Mrs. Marie J. Smith of Amarillo, Tex.; Miss Alma C. Niesen of Cincinnati, Ohio; Mrs. Maney J. Feeney of Philadelphia, Pa.; Mrs. L. J. Rosenfield of Louisville, Ky.; Mrs. O. G. Johnson of Minneapolis, Minn.; Mrs. E. B. Clayton of Denver, Colo; Mrs. Charles Pelunek of Milwaukee, Wis.; Mrs. W. T. Polley of Hutchinson, Kans.; Mrs. W. Ludlow of Buffalo, N. Y.; Mrs. Bart D. Coffey of Portland, Ore; Mrs. J. Preston Perham of West Roxbury, Mass., and Mrs. J. A. Mann of Winter Haven, Fla.

The National Women's Auxiliary Scholarship committee has thirteen members, who are as follows: Mrs. Charles Kieser of Massachusetts, Mrs. John Orth of Indiana, Mrs. E. D. Fishback of Oklahoma, Mrs. Stanley T. Smith of Ohio, Mrs. H. H. Diedesch of Illinois, Mrs. Charles C. Werner of New Jersey, Mrs. C. Madsen of Maine, Mrs. Lee Sheffield of Florida, Mrs. E. O. Pratt of Oregon, Mrs. Harry D. Shuerer of Missouri, Mrs. J. C. Wall of Michigan, Mrs. G. E. Gilhaus of Kansas and Mrs. Floyde C. Sharp of New York.

A new committee, which has never been named for the auxiliary in previous years, is the Opportunity Committee, Plumbing and Heating Industries' Bureau. Its members are Russell G. Creviston and Miss Ida M. Anderson, both of Evansville, Ind.; Mrs. C. W. Wilson of Youngstown, Ohio; Mrs. Leslie Williams of Orange, N. J.; Mrs. George M. Hicks of Philadelphia, Mrs. Harry Sanborn of Miami, Fla., and Mrs. Charles Quinn of St. Louis, Mo.

New Orleans Auxiliary Holds All-Day Picnic

The Women's Auxiliary to the New Orleans Association of Master Plumbers gave an all-day picnic Sunday, July 29, at the summer home of Mr. and Mrs. A. Grimaldi, the Majorie Camp at Seabrook. In true "leap year" fashion the ladies took advantage of their prerogative to "turn the tables" and entertain the men. The men already have made plans to officially reciprocate, and at a very near date, so the auxiliary feels that man is an appreciative sex after all.

In view of the facilities offered at Camp Marjorie, swimming was enjoyed by the majority of those present. There were games for the kiddies and dancing for their fathers and mothers. Messrs. Edwin, John and Joseph Petre ably furnished the dance music.

The outstanding event of the day was a picnic dinner which was served with the usual picnic fixings. One of the younger guests was heard saying: "Mother, I really can't decide what to start on."

Among those present were Mr. and Mrs. S. Antoine; Mr. and Mrs. E. Camos and family; Mr. and Mrs. L. Faivre and family; Mr. and Mrs. J. O. Farrell; Mr. and Mrs. A. Grimaldi and family; Mr. and Mrs. E. Loubat and family; Mrs. A. Larsen; Mr. and Mrs. Wm. C. Maher and family; Mr. and Mrs. O. McGregor and family; Mr. and Mrs. L. Petre and family; Mr. and Mrs. Jos. Peters; Misses M. Petre and M. Verges; Mrs. Pratt; Mr. and Mrs. P. H. Quinlan and family; Mr. and Mrs. J. A. Reynolds; Mr. and Mrs. Chas. Ross and family; Mr. and Mrs. R. Schwarz; Messrs. N. Antonie; R. Austin; H. Charlton; J. R. Lawton, Jr.; T. Linn; E. Petre; John Petre; J. Post; W. J. Quinlan; Pat Reynolds.

A good time was had by all and the women's auxiliary members will more than likely decide to repeat such an outing at least annually.

St. Louis Auxiliary Hold Moonlight Boat Ride

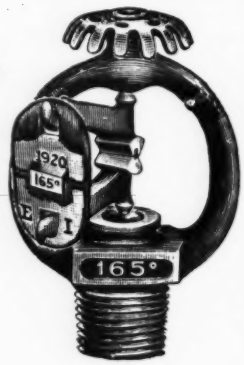
A very pleasant and interesting feature of a busy week end of social events among the members of the St. Louis association and auxiliary was a three-hour moonlight ride on the Mississippi River, Monday evening, August 6. The party was sponsored by the Ladies Auxiliary under the general direction of Mrs. E. E. Manahan, president,

Officers of the St. Louis Auxiliary: Mrs. E. E. Manahan, president; Mrs. William Kuehne, vice president; Mrs. A. W. Marx, secretary; Mrs. H. Bartosch, treasurer

with Mrs. George Rodenheiser as chairman of the entertainment committee, ably assisted by Mrs. William Kuehne and Mrs. Franklin Kunz.

The Steamer "JS" was chartered for the occasion, and over 400 were on board to make the party a delightful success. An infinite variety of amusements was provided by the facilities of the boat, as well as dancing, for which an excellent orchestra furnished the music. Numerous

C-S-B
Sprinkler Heads



Positive insurance would be enough to give your customer in C-S-B Sprinkler Heads. But you give them more than that. They save actual dollars and cents in their fire insurance.

Every Head Stamped with date sealed and fusing degree. See that you get the genuine.

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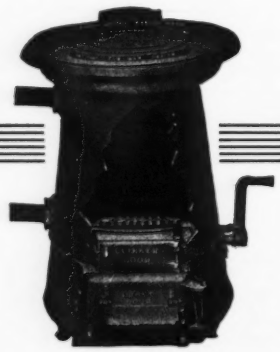
86 Broad Street, Boston, Mass.



Brass Coil

CLE-BAR
WATER HEATERS

The best and only thing that need be said about the Cle-Bar Water Heater is that more and more of them are going on the important jobs every year. It doesn't take long for the wide-awake contractor to recognize superiority.

CLEGHORN CO.
86 Broad St., Boston, Mass.

bridge and other card games were under way shortly after the gang plank was hauled.

Among those present were a number of representatives of local supply houses and manufacturers. Clark Ryan, St. Louis city representative of the American Heater Corp., who is also an artist attached to the staff of broadcasting station WIL, entertained a group of friends on the upper deck with several vocal numbers. J. F. Donovan, national executive clerk, and Mrs. Donovan were present. The proceeds of the party will go into the general fund of the St. Louis auxiliary.

Outings Feature Summer for Minneapolis Auxiliary Members

Some time ago the Woman's Auxiliary to the Minneapolis Retail Plumbers' Association held a very nice picnic for the members and their families at the summer home of Mr. and Mrs. L. O. Klopfer at Crooked Lake, Anoka, Minn. Baseball games were in evidence most of the day. There were games for children as well as adults. Everyone brought a lunch, and coffee was served by the hostess and her assistants, who were Mrs. William Nary, Mrs. J. D. Keefe and Mrs. A. Sachs.

In July the auxiliary held another picnic, this time at the summer home of Mr. and Mrs. A. Lacher at Holdridge, Lake Minnetonka. The day was not very favorable, but a fair attendance was in evidence. Games were played. The hostess served coffee, and assisting her were Mrs. A. M. Wintheiser and Mrs. Hugo Guntzel.

Tampa Auxiliary to Entertain Visiting Ladies

Despite the hot weather and the absence of many members who are away for the summer, the regular monthly meeting of the Tampa Woman's Auxiliary to the Master Plumbers Association was held on August 1 at the home of Mrs. E. J. Holmes, with seven members present.

The absence of Mrs. George McGhan, Jr., president, who was unavoidably detained, was regretted by all. Mrs. O. E. Kruse, vice president, charmingly presided, and much of interest to the auxiliary was discussed, among other things a fish fry to be held in the very near future with the master plumbers at their home on West Frances avenue. The fishermen of the association are to furnish the fish.

It was decided that the Tampa auxiliary would be hostess to all visiting ladies on August 28 when the state board meeting is held in Tampa, and a committee was named in charge of the luncheon.

Mrs. Leo Senesac gave an interesting report on the watermelon feast given by the ladies of the auxiliary on July 16, when the men were surprised after their meeting. Many luscious cold melons were cut and all enjoyed a very pleasant evening together. Mrs. D. O. McDonald will be hostess at the next meeting at her home on Tenth street on September 5. At the close of the meeting, delicious refreshments were served by the hostess.

Lef to right: Mrs. Fred A. Penney, of Royal Oak, Mrs. W. S. Ames of Flint, Mrs. W. J. Hughes of Bay City, Mrs. Sam C. Andres of Ann Arbor, Mrs. J. E. Wernet of Pontiac.—Photo taken at the recent convention of the Michigan Women's Auxiliary.

LINCOLN MASTERS AND EMPLOYES HOLD PICNIC

Saturday, August 4, was frolic day for the master plumbers of Lincoln, Nebr., and their employes. Nearly 300 went to Tuxedo park at Crete, for the annual outing.

A baseball game between the steamfitters and plumbers featured the fun in the morning, the steamfitters winning. A basket lunch was followed in the afternoon by a series of games and races, the latter events being featured by a "hot dog" contest for men. It was won by John Manion. Ice cream and pop were served, and dancing in the evening concluded the day's program.

W. C. Burmood was general chairman of the arrangements committee. Other chairmen were David Weber, Clyde Kimsey, Elbert Ellington and W. C. Howard.

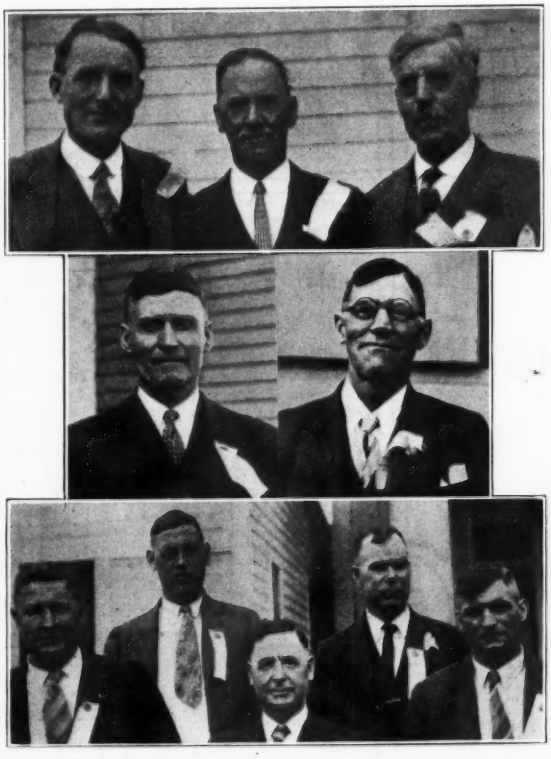
The W. T. Finnigan Plumbing & Heating Co., Portland, Ore., has just taken 2,000 square feet of floor space in the Warren Estate building at 239 Jefferson street.

Business Changes

Ashley, Ohio.—John D. Loren, formerly of Columbus, has bought the plumbing business of Flavin Brothers in Ashley. Mark Flavin, who has been in charge of the business, will continue to be in charge of the Mt. Gilead shop of the company.

Seattle, Wash.—E. G. Spangler, formerly of the firm of Norton & Spangler, plumbing contractors, is now in the business under the firm name of E. G. Spangler Co., 2228 Second avenue.

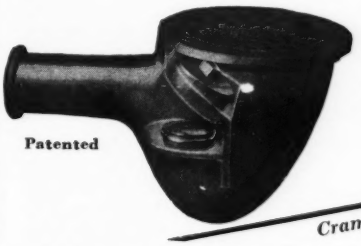
Milwaukee, Wis.—The F. E. Downey Co., contractors



Top row: C. D. Farquharson, J. K. Robinson, city plumbing inspector; J. R. Bendon, all of Bellingham.—Middle row: W. F. Ferguson of Hoquiam and John T. Wilson of Centralia. —Bottom row: J. K. Marshall, J. A. Schaffer, J. H. Kelly, John Claherty, E. Embley, all of Longview-Kelso association.—Photos taken at the recent convention of the Washington Master Plumbers' Association

READY MARKET

There's a ready market anywhere for the Signet Floor Drain. Its features are cleanliness, sure operation at all times and durability.



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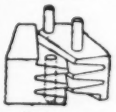
Crampton-Farley Brass Co.
Kansas City, Mo.

From Your Jobber

The Built-Well V-Lock Joint



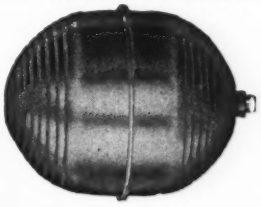
Patented

Sectional view of joint, turned upside down to show how dowels are inserted from bottom. Moisture only makes them tighter.

Toilet seats need the kind of construction that Built-Well seats have for strength and long life.

Built-Well Mfg. Co. 300 N. Robey Street Chicago, Illinois

Toledo Solderless Floats



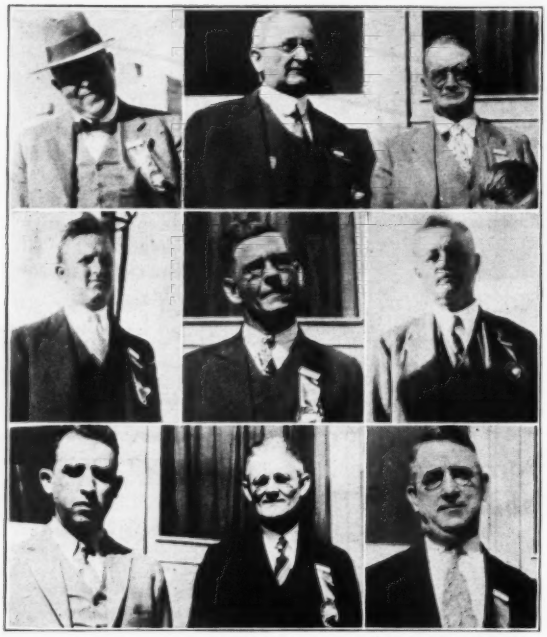
Reichert Toledo Solderless Floats are the popular favorites with hundreds of plumbers all over the country. The reason is because they are serving in thousands of installations in a new efficient manner.

Why don't you order them from your jobber for your next job?

REICHERT FLOAT & MFG. CO.
2238 Smead Ave. :: :: Toledo, Ohio

McKEESPORT RADIATION

Pronounced by contractors and users alike as striking in design and positive in economical heating—McKeesport Radiators. The Columbia Radiator Co., McKeesport, Penna.



Top picture: L. H. Sullins of Pampa, Tex.; N. S. Hill of Waco, C. W. Richmond of McAllen.—Middle row: R. C. Malitz, Jr., of Houston; E. V. Woolever of Slaton, Prof. F. E. Giesecke.—Bottom row: M. W. Levy and A. S. Johnson of Dallas; P. G. Callahan of Houston.—Photos taken at annual outing of Associated Master Plumbers of Texas

for heating, ventilating and power piping, have moved into their new quarters at 1217 Clybourn street.

Pittsford, Mich.—Glenn Daykin has sold his plumbing and heating business, including the building, to Roscoe Patterson.

New Business Ventures

Cincinnati, Ohio.—The Koper Heating Co. was recently incorporated to carry on a heating contracting business. The incorporators are: Edward J. Koper, J. Paul Culkins and Edward J. Schneider, who was formerly with the Jardine Plumbing Co. in Chillicothe.

Silverton, Ore.—James Johnson has engaged in the plumbing and heating business as the Silverton Plumbing Co.

Duluth, Minn.—The Home Plumbing & Construction Co. has been incorporated by D. S. Holmes, 2921 Branch street, and others.

Hartford, Conn.—T. J. Egan, plumbing contractor, has opened up an establishment to include an office, shop and showroom at 39 New Britain avenue.

Detroit, Mich.—The Parker Plumbing & Heating Co. has been incorporated and has engaged in business at 2960 Elmhurst avenue.

Sandpoint, Ida.—John Webb recently opened a plumbing establishment on First avenue.

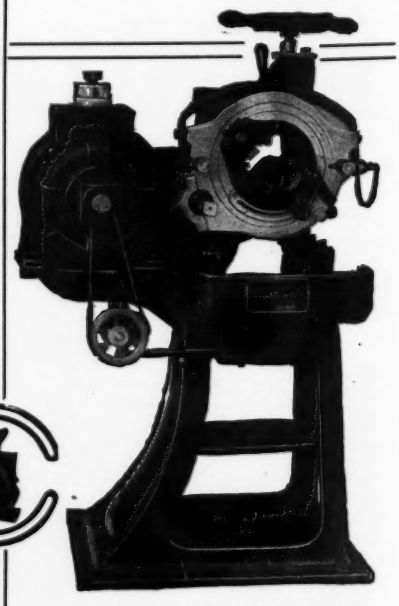
The State Plumbing & Heating Co., Newark, N. J., recently organized with a capital of $10,000 by Benjamin Singer and associates, has acquired a local site where it is planned to open a modern plumbing, heating and engineering contracting business. Plans are not yet complete, but it is hoped that the company will be able to move as soon as possible.

Curtis

PIPE THREADING MACHINE
4 INCH

Weighs 680 lbs. and when placed is a complete machine for chucking, cutting, and threading 1 to 4 inch pipe without any extra parts required.

Time is saved as pipe on the floor can be chucked, cut off, and threaded and returned to the floor in three minutes.



Electric 1-4 Inch

THE CURTIS & CURTIS CO.
318 Garden St. Bridgeport, Conn.

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It has set high circulation requirement standards that must be lived up to by all its members.

Most of the better papers have joined the A.B.C. in order to get the benefit of the prestige gained by being members and to protect themselves and their advertisers against those publications which employ questionable tactics in securing and labeling their circulation.

The cost to a publication is small.

The benefits are great.

Any publication can become a member if it will conduct its business in accordance with the standards of the Bureau.

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The Plumbing and Heating Weekly
1900 Prairie Avenue -- -- CHICAGO

Wholesalers Display Great Interest in Elimination of Catalog Waste

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Address 79 DEPOT ST., MANCHESTER, NEW HAMPSHIRE.
Signed By [signature] Position

This is a daily working record of references made by the members of this company to our copy of the 1928 edition

DOMESTIC ENGINEERING CATALOG DIRECTORY

for information on products and sources of supply of products used in the plumbing and heating field.

For the period July 10 1928 to July 17 1928

Please make one mark for each individual reference, in pencil or ink on ruled lines below regardless of the nature of the reference.

Day		Total
Monday	𝍸 | |	10
Tuesday	| |	2
Wednesday	| | |	3
Thursday	𝍸 | |	6
Friday	𝍸 | | | |	7
Saturday	𝍸 |	3

Grand Total for Period 31

Remarks:

Opposite is a record kept by

Manchester Supply Co. of Manchester, N. H.

showing the number of references made to "Domestic Engineering Catalog Directory" for the period of one week

A RECENT survey made by us shows that "Domestic Engineering Catalog Directory" is referred to on an average of 4000 times a day by the wholesalers of plumbing and heating supplies. This means that the manufacturers' catalogs appearing in the Directory are subjected to inspection by the buyers at least 1,200,000 times a year.

These figures were compiled from records kept by wholesalers for one week on a loose jacket slipped over the front cover of the Directory. The jacket reproduced above is typical of hundreds we received from wholesalers all over the country.

"Domestic Engineering Catalog Directory" is the only medium of its kind published exclusively for the plumbing and heating industries. It combines a modern catalog file for desk use with listings of some 2000 items used by the industry—all indexed for immediate reference. By featuring their products in this Directory, manufacturers are assured of economical catalog distribution, eliminating entirely the element of waste.

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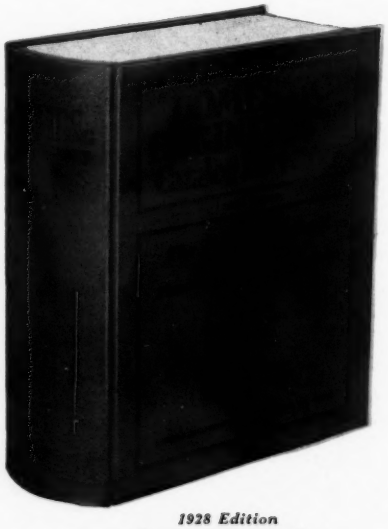

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Standard Catalog Size
7¾ x 10⅝ Inches
2,000 Pages — 10,000 Illustrations

DOMESTIC ENGINEERING COMPANY
1900 PRAIRIE AVENUE :: CHICAGO, ILLINOIS

COURAGE

You may sing about the courage of Horatius,
As he held the bridge against a horde voracious;

You may tell how brave Achilles challenged Hector
To a battle in his tinny chest protector;

You may rave about how fighting Mister Tunney
Has upon his courage made a lot of money—

But has any poet written,
In a spirit of elation,
Of his courage on the Monday
After he'd been on vacation?

While we speak of courage, think a moment of the bloke
Who, in mood heroic, has decided not to smoke.
First his steno quits him, won't begin to take his guff,
As the day advances finds the going getting rough.
Chews a wad of Spearmint, big enough with ease to choke
Any self-respecting horse—still till noon he doesn't smoke.
After lunch time drags along—two, three, four, the hours loaf,
Till our hero's shrunken to the merest, meanest oaf. . . .
Half-past four, he's tilted backward, smoking with a smile
"El Habana" that was hidden in his pocket all the while.

L. N. O'F., Los Angeles.

THE COAST GUARD

Loudly the bell in the old tower rings,
Memories sweet to a mother it brings.
"Sailor, beware! Sailor, take care!"
She whispers, "My brave son is there.
And sharp are his eyes, but sharper his ear,
Through raging of storm my boy he can hear
The siren that tells of boats riding bold,
The gurgle of Scotch, stowed away in the hold."

"SY" SEZ

"Doctor, if there is anything the matter with me, don't frighten me half to death by giving it a long, scientific name. Just tell me what it is in plain English."

"Well, sir, to be frank, you are lazy."

"Thank you, doctor. Now tell me the scientific name for it. I've got to report to the missus."

You never hear of a prophet getting stoned for predicting a hard winter that doesn't show up.

A reformer believes in law and order. The laws for you and the orders from him.

By the time a little girl gives up lollypops she's ready to start right in on lipsticks.

"SY" MARTIN, Owensboro, Ky.

AH! LIFE'S COMPLEXITY

Brother, support me, give me your hand—
Life moves so swiftly, I don't understand.
Now come these wise men, but to reveal
Love will not prosper with no SOX appeal.

When you get one of those cards from a friend who is on vacation, "Wish you were here," he probably means it. He'd have only half the number of mosquitos biting him.

L Y T.

HESSLER
Roof Flanges

Consider Your Men

When you send a man of yours out on the job with a roof flange that takes a lot of his time and temper to install, you are not giving him the chance he needs to make money for you. Hessler Roof Flanges require only a hammer and no cuss words to install them. They go on right and stay right.

ASK YOUR JOBBER

H. E. Hessler Company
Syracuse, New York

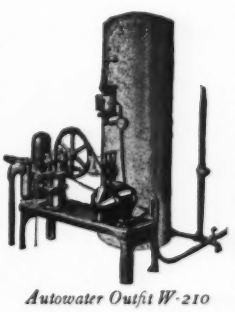
GOULDS
AUTOWATER SYSTEMS

Your Customers' Water-Supply Problems

Send Them To Us

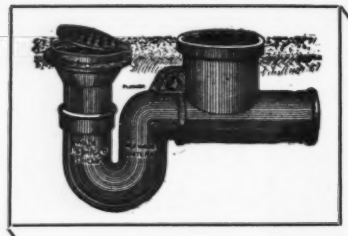
OUR Rural Service Department will help you solve them and give honest recommendations that will help you sell Autowater Systems.

You are placed under no obligations for this service. Simply write to our Rural Service Department sending complete information.



Autowater Outfit W-210

GOULDS PUMPS, INC.
Seneca Falls, N. Y.



Have you your copy of the Wade catalog, illustrating and describing the complete line of Wade Back Water Gate Valves? If you haven't, write at once. :: :: ::

WADE IRON SANITARY MFG. CO.
551 Fulton St. Chicago, Ill.

Simplifying your shop problems will ever be your big concern. It was to help you with these problems that we developed the Martin Portable Vise Stand and Pipe Bender. Here is a piece of shop equipment that is reasonably priced, efficient, strong and long lived. It will pay you well to invest in one. Ask us for prices and full information. H. P. Martin & Sons, 626 E. 2nd St., Owensboro, Kentucky.

All Lead-Copper-Galvanized Iron

SIMPLEX AND JUNIOR FLASHINGS FOR EVERY ROOF CAN BE HAD IN EACH OF THE ABOVE METALS.

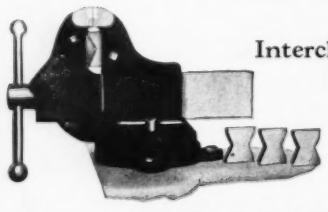
Write for prices and full information on the easily installed, durable SIMPLEX and JUNIOR Flashings.

SIMPLEX MFG. CO.
2644 N. Ashland Avenue
Chicago, Illinois

"Junior Flashings"

HOLLANDS VISES

Swivel Base



Interchangeable Pipe Jaws

This combination vise will meet every demand of the shop. The pipe jaws are steel and can be removed by loosening set screws. The swivel base can be locked at any point and is positive.

HOLLANDS MANUFACTURING COMPANY
Established 1887 - ERIE, PA.

TIES UP WITH CAMPAIGN

What the merchant plumber is doing in the way of hooking up with the national advertising campaign fostered by the Plumbing and Heating Industries Bureau in its endeavor to put across the "Make a Health Examination of Your Home" slogan, is graphically shown by a window display which the J. Hokom Co., contracting plumbing concern, 4312 South Broadway, Los Angeles,

Show window of the J. Hokom Co., plumbing contractors of Los Angeles, Calif.

Calif., dressed a few days ago to interest passers by. As indicated in the illustration of this display shown herewith, emphasis is directed to the "Health Examination" idea, with the plumbing fixtures merely incidental. Also the hook-up with the advertisements now running in The Saturday Evening Post is particularly featured. This display already has attracted a great deal of attention. The J. Hokom Co. is the first merchant plumbing concern in Los Angeles thus to identify itself with the national campaign.

LAFAYETTE SOCIETY HOLDS OUTING

The Lafayette (Ind.) Society of Sanitary Engineers held its annual outing recently at the Werkhoff summer home on the Wabash river, near the historic Tecumseh Trail. Eighteen members of the society were present, and A. E. Werkhoff, Sr., a past state president, was the guest of honor. In spite of a hard rain, several contests were held, horseshoe pitching proving the most popular, two teams vieing for the mud honors of the organization. A dinner closed the day's program, which everyone enjoyed fully.

Epigrams—For Your Use

The wife who chases her husband with a poker rules him with a rod of iron.

* * *

Love fills unoccupied hearts and rattles unoccupied heads.

* * *

Don't follow the crowd if you want to be a leader.

* * *

The man who makes hay while the sun shines is likely to get sunstroke.

* * *

The quiet action of the little wasp is responsible for many loud words.

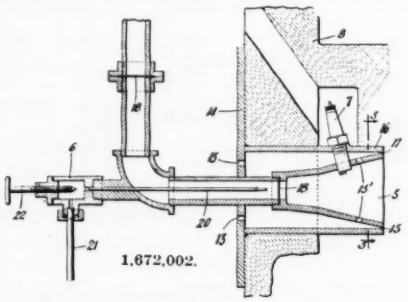
* * *

When better conferences are made, business men will go to them.

PATENTS

Heating Department

1,672,002. Heat Generator. Jerome J. Sloyan, Red Bank, N. J. A heat generator comprising a source of liquid fuel supply, a carburetor, means for delivering the fuel to said carburetor, pipe connections between said source of supply, delivering means and carburetor, a sheathed nozzle, auxiliary air ports in the rear flange of

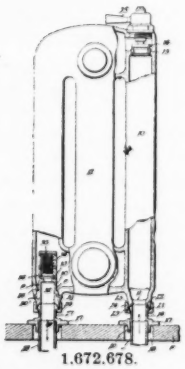


1,672,002.

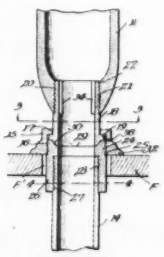
the nozzle between the nozzle and the sheath and ports at the front end of said nozzle, a blower, pipe connections between said blower and nozzle, said carburetor connected to said blower and nozzle pipe line and means for maintaining the air pressure in the carburetor the same as the compressed air from the blower to the nozzle.

* * *

1,672,678. Radiator. Harold D. Fitzgerald, Danville, Va. The combination with a radiator section having an opening adjacent its bottom and a threaded extension around said opening, of a hollow supporting leg having a flange adapted to engage the surface of the floor or other support around a pipe line opening, means for connecting said leg with a pipe in said opening, and freely rotatable means on said leg for engaging the threads on said radiator section and connecting the leg thereto.



1,672,678.



1,672,679.

1,672,679. Coupling. Harold D. Fitzgerald, Danville, Va. A hollow leg for a radiator comprising a circumferential flange adapted to engage the surface of a floor or other support around a pipe opening, and to cover said opening, a section adapted to be secured to a radiator, a section adapted to be secured to a pipe line, with the end of said sections forming a joint therebetween, and means on one of said sections and detachable therefrom for securing together said sections.

* * *

1,672,330. Outside Pipe Cutter. Ira J. McCullough, Walnut Park, Calif. In a device of the class described, a cage adapted to be rotated, cutter units mounted thereon

And now UNCLE SAM OK's it

THE Electric Furnace-Man has joined the Army! Now we can add Uncle Sam to our rapidly growing list of prominent customers. Government orders have been received for eighty-seven stokers to be installed at once at Fort Wadsworth, Fort Slocum, Fort Hamilton, Plattsburg Barracks, Madison Barracks, all in New York State, and at Fort Dupont, Delaware.

The Electric Furnace-Man was chosen after thorough investigation and with the same discriminating care that Uncle Sam uses in selecting the most effective and modern equipment for his Army.

ELECTRIC FURNACE-MAN

The automatic anthracite heating unit—safe, clean and economical.

Nothing can be more thorough than Government tests—and nothing more convincing than Government adoption. You can cite these installations to builders and heating engineers who ask for evidence of scientific approval. Whatever the heating system—warm air, steam, vapor or hot water—the ELECTRIC FURNACE-MAN soon gives proof of its remarkable efficiency.

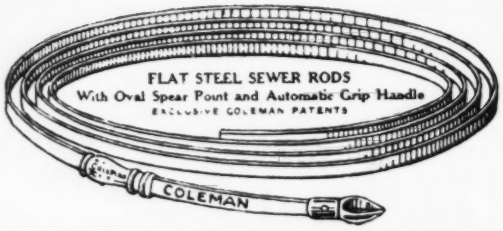
We invite your fullest investigation and will be glad to furnish particulars upon request. Now being demonstrated in coal merchants', distributors' and dealers' show-rooms throughout the east and middle west. Let us put you in touch with our nearest representative—so that you may be prepared to make suitable recommendations.

In Your Home-Heating Specifications

AUTOMATIC ANTHRACITE HEAT

DOMESTIC STOKER COMPANY

Gillespie Building, Seven Dey St., New York, N. Y.



Coleman's

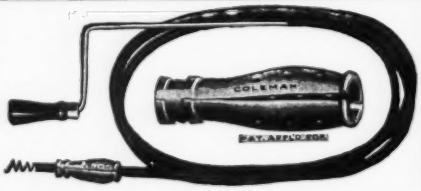
Shown here (above) the Coleman Flat Steel Sewer Rod and (below) the Pipe Auger.

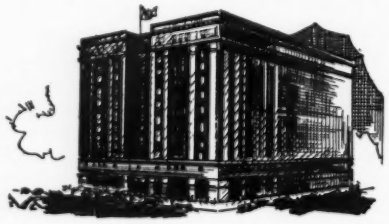
The plumbing shop is not complete without these sewer and pipe cleaning necessities. With them, you can positively remove all stoppages from any sewer or drain.

Ask your jobber to show you this combination. You'll be surprised at the ease with which you can clean stoppages with them.

Allan J. Coleman
208 N. Wabash Ave. CHICAGO, ILL.

Flexible Coil Wire Sewer and Pipe Auger with an automatic grip handle.





In Toledo

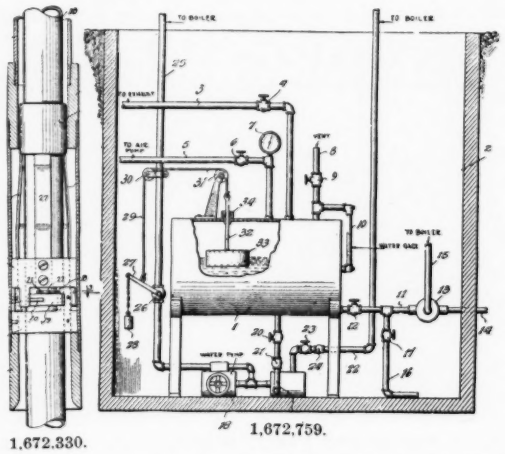
There's an opportunity to secure a room for as little as $2.00 per day. Other rooms also large light sample rooms, slightly higher.

The WALDORF

Centrally located and under Keenan Management, which means courteous service. Prices a little lower than Hotel Secor (same management).

KEENAN HOTEL SYSTEM
JAMES F. KEENAN, PRESIDENT

so as to be projectable from retracted position toward the work into cutting position, an actuator mounted on said cage for turning movement thereon and for rotation therewith and including means to project said cutter units upon relative rotation of said cage and actuator in one direction, and means to yieldably resist turning of said actuator upon rotation of said cage.



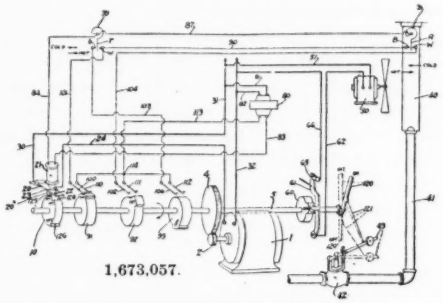
1,672,330. 1,672,759.

1,672,759. Combined Gravity and Vacuum Steam Trap. Lawrence W. Hannon, Ironton, Ohio. In an apparatus of the character described, the combination of a closed tank, means to support the tank at a level lower than an engine with which the apparatus is to co-operate, a pipe leading from the upper portion of the tank for connection with the exhaust of the engine and having a manually controlled valve in its length, a second pipe leading from the upper portion of the tank for connection with a suction pump whereby a partial vacuum may be created in the tank and having a manually controlled valve in its length, a float in said tank having an upstanding stem extending outwardly through the upper portion of the tank, a water pump below said tank, a steam pipe leading from said pump for connection with a boiler to supply steam to the pump to actuate the same, a valve in the steam pipe having an actuating lever, a body of less weight than the float suspended from the lever to move the lever downwardly and open the valve when the float is raised, a flexible connection between the lever and stem of said float to close the valve when the float is lowered, a pipe connecting said pump with said tank to conduct water from the tank to the pump and having a manually controlled valve and a check valve in its length, and a pipe for delivering water to the boiler leading from the pump and having a manually controlled valve and a check valve in its length.

* * *

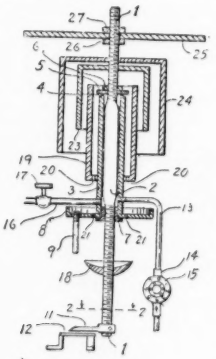
1,673,057. Unit-Heater Control. Harold W. Sweatt, Minneapolis, Minn., assignor to Minneapolis Heat Regulator Co., Minneapolis, Minn. A device of the class described comprising a heater, a valve for controlling heat supply thereto, a fan motor arranged to circulate air warmed by the heater, a circuit for the fan motor including a switch, a control motor and a shaft rotatable thereby, a circuit for the control motor including a switch and a coil for operating the switch, means associated with the switch and operable by the shaft for holding the same in closed positions, and for allowing the switch to open, a thermostatically responsive room device, a device responsive to fluctuations in heat supply at the heater, each device having contacts engageable by a movable member, switches adapted to close circuits to said coil for control through the contacts of said room and

radiator device, switch controlling elements rotatable with the shaft, one for each last mentioned switch, and for said fan switch, said elements arranged to close the switches to allow energization of the coil respectively by either device, by the radiator device only, and by the room device only.



1,673,057.

1,673,119. Oil Burner. William C. McKesson, Chicago, Ill. In an oil burner, a generating chamber; a valve stem passing through said chamber; a scraper formed on said valve stem; an adjustable valve operated by said valve stem and adapted to regulate the flow of vapor from the said generating chamber; means for supplying fuel to the said generating chamber; a heating chamber partially enclosing the said generating chamber adapted



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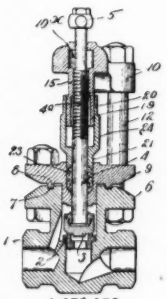
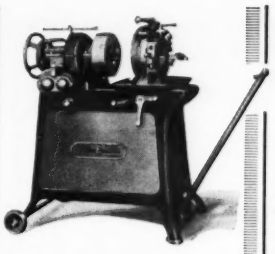


1,673,058.

to receive the vapor therefrom and having perforations in the bottom adapted to permit the escape of fuel; and concentric mixing baffles adapted for mixing heated vapor and air adjacent to the outer surface of the heating chamber.

* * *

1,673,058. Valve. Belvin T. Williston, Somerville, Mass., assignor, by mesne assignments, to Consolidated



Can be rolled easily to any place on the job or in the shop.

RED-E-HALL
PORTABLE PIPE THREADER

You Have the Advantage

YOU have all the advantage on your side through our deferred payment plan. You can put the Red-E-Hall to work for you and make it pay for itself. Why not write today for details?

HALL-WILL, Inc., Erie, Pa.
Pacific Coast Office:
717 Calmar Ave. Oakland, Cal.

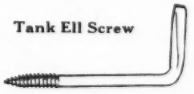
HINDLEY'S *Plumbers' Specialties*

Closet Bolt

Fine workmanship and good material are the biggest features of Hindley Specialties. They will make your work easier.

Send for our catalog.

HINDLEY MFG. COMPANY
Valley Falls, R. I.



Tank Ell Screw

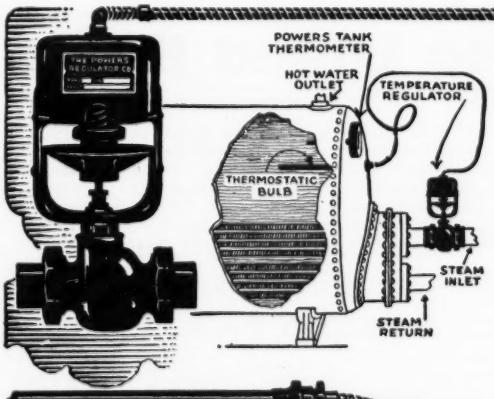
Closet Screw

EMERGENCY TUBE PLUG

This Emergency Tube Plug is easy to use. Once in place it will hold securely. Because of the tapering thread it cannot loosen.

Ask your jobber.

JOHNSON-WASHBURN COMPANY
91 Haverhill St. Boston, Mass.



DOUBLE PROFIT FOR YOU

You make a two-way profit every time you install a Powers Hot Water Tank Regulator.

(1) **In cash.** A good profit margin—all yours. Powers Regulators are easy to install and trouble proof.

(2) **Customer good-will** built on satisfactory service is your biggest asset. Because of its ACCURACY and DURABILITY, the Powers Regulator gives complete satisfaction.

Your market for this profitable staple is growing from year to year. Write for new bulletin.

THE POWERS REGULATOR CO.
36 years of specialization in temperature control
2716 GREENVIEW AVE., CHICAGO. Also New York, Boston, Toronto, Atlanta, Los Angeles and 31 other offices. See your telephone directory (4111)

MONARCH HUSKY THE MONARCH ENGINEERING CO. DAYTON, OHIO U.S.A.

All that the Name Implies

DIRECT PRESSURE UNIT

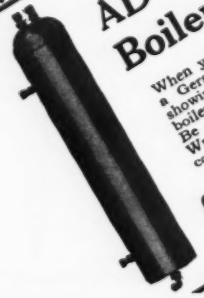
Pumping Capacity 200 gallons per hour

$85.00 f. o. b. List Factory

With Standard 60 Cycle Motor

The Monarch Engineering Company
230 East 1st Street, Dayton, Ohio

ADVOCATE Boiler Economy



When you suggest to your customer a Gerstein Copper Boiler you are showing him how to get the best boiler service at the greatest economy. Be an advocate of boiler economy. Write and let us tell you about copper boilers.

Gerstein Copper Boilers

H. GERSTEIN & SONS
South Boston, Mass.
New York, 511 Fifth Ave.
SAMUEL SKNER

Air Vent

Water Supply

The STINSON Patent Equalizing Valve

A system designed to prevent Water Hammer and any reaction in the water supply system in the building. If properly installed, the Stinson Equalizing Valve is guaranteed to completely and thoroughly remove any vibration in water pressure systems of piping.

The Valve is made in sizes as conditions require.

Stock sizes: 1¼, 1½ and 2¼ inch.

1¼ inch will take care of from ¾ inch to 1¼ inch supply.

1½ inch will take care of from 1 inch to 2 inch supply.

2¼ inch will take care of from 2 inch up to 4 inch supply.

Send rough sketch of piping in basement and I will advise you the proper place to install the equalizer.

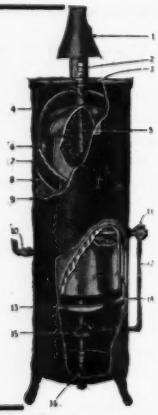
Robert Stinson, 1632 Forbes Street, Pittsburgh, Pa.

The New AMPCO AUTOMATIC COPPER STORAGE SYSTEM

Has Sixteen Superior Points

Write us about them

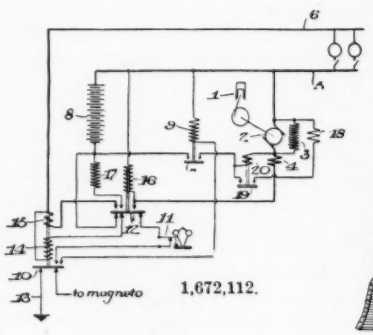
ARTISAN METAL PRODUCTS CO.
CHARLESTOWN MASS.



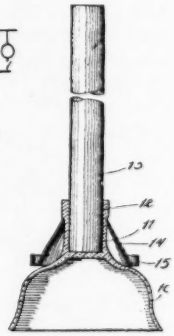
Ashcroft Hancock Company, New York, N. Y. A valve of the class described comprising a body having a valve seat therein, a valve head co-operable with the seat, a stem connected to the valve head, the stem having an externally screw-threaded portion, a bonnet attached to the valve body, said bonnet carrying an elongate part provided with screw threads which engage the screw-threaded portion of the stem, the bonnet also comprising spaced posts supporting said elongate part and having a stuffing box chamber concentric with the valve stem, and a packing gland concentric with the valve stem, said gland being rotatable and having screw threaded engagement with screw threads upon said elongate part.

Plumbing Department

1,672,112. Means for Facilitating Starting of Automatic Generating Plants. Anton Frank Brotz, Kohler, Wis., assignor to Kohler Company, Kohler, Wis. In a gas-engine-driven generator-system, automatic means actuated by a demand on the mains for starting the engine by the generator operating as a motor with current from a storage battery of lower voltage than the generator, a switch in circuit with said means, and an auxiliary shunt field winding for said generator included in circuit momentarily during starting by the operation of the above-mentioned switch.



1,672,112.



1,673,447.

1,973,447. Plumber's Plunger. Elias S. Fiedler, La Crosse, Wis. In a device of the kind described, a flexible and elastic cup, a relatively rigid shank extending radially from said cup, a frusto-conical compressor plate having a central opening in which the shank fits and depending from the shank over the central portion of the cup, an upturned flange on the lower edge of said plate, and a handle forming a continuation of said shank.

1000 Island House

Rest and play in the heart of Alexandria Bay amidst sixty miles of picturesque islands, with the waters of the old St. Lawrence cooling their shores. The 1000 Island House offers spacious modern accommodations to more than a thousand guests. Golf, swim, canoe, fish, hunt and go motor-boating in the scenic grandeur of the 1000 islands. Fireproof by Automatic Sprinkler system.

Write for illustrated booklet, road maps and rates.

WM. H. WARBURTON, President and Treas.

"In the Venice of America" Alexandria Bay New York

CLASSIFIED ADVERTISING

8 cents for each word including heading and address. Count seven words for keyed address. Minimum $2.00 for each insertion. One inch $4.00. Cash must accompany order. Copy should reach us eight days in advance.

Situations Open

SALESMEN—AN OLD ESTABLISHED house making a full line of plumbing specialties in brass, leather, rubber, etc., could use local representatives in the principal cities of the United States to sell their line, either whole or part time, on a straight commission basis. A very liberal proposition with full settlement at end of each month. This is a high-grade line, with many exclusive items. Will bear the closest investigation. We will not consider anyone who does not at present have a trade acquaintance in their respective city. If you are a resident of one of the larger cities and have a following among the plumbing trade, we can put you in a position to make good money, providing your territory has not yet been allotted. Reference required. All replies treated in strict confidence. Address, stating qualifications, etc., Key 902, "Domestic Engineering," 1900 Prairie Ave., Chicago, Ill

SPECIALTY SALESMEN WANTED IN hard water territories to sell high grade water softener to plumbing trade. Commissions. Address Key 194, "Domestic Engineering," 1900 Prairie Ave., Chicago.

MANAGER: COMPANY FURNISHING a million dollars' worth of standardized equipment to the heating industry yearly desires to procure a manager with an acquaintanceship in the heating industry who has had experience in merchandising and sales work and is familiar with steam circulation. The position would call for taking charge of sales, advertising, collections, etc., and the handling of ten salesmen doing a national business. Company is progressing and growing. Good opportunity for the right man with the right kind of ability. Salary from eight to ten thousand. Address Box 322, Elizabeth, N. J.

SALESMEN COVERING WHOLESALE trade to place new patented accessory that is revolutionizing wash tub installations. Protected territories assured, plus direct mail advertising and liberal commissions. This quality product is priced right, sells on sight and fully justifies the interest of men who make big money. Write today, stating territory, etc. Sanitary Enamel Back Products Co., 1613 75th St., Brooklyn, N. Y.

HEATING SALESMAN WANTED: ONE of the oldest and largest plumbing and heating supply houses in the middle west wants to connect with live salesman who knows the heating game thoroughly. Knowledge of plumbing and plumbing supplies also an essential. We prefer a man with an acquaintanceship among plumbers in Illinois, although actual experience in that state is not an absolute requirement. An excellent opening for the right man with compensation in ratio to his ability to produce. Address Key 199, "Domestic Engineering," 1900 Prairie Ave., Chicago.

TRAVELLING SALESMAN WANTED by manufacturer of pipe fittings and valves. One having large acquaintance among jobbers. Write giving experience in full. Address Key 195, "Domestic Enginering," 1900 Prairie Ave., Chicago.

Situations Wanted

EXPERIENCED SALESMAN AND OFfice man, now employed, wants to locate in Chicago or Detroit. Plumbing, Heating, Mill Supplies. Can furnish bond, and will arrange interview for right company. Address Key 201, "Domestic Engineering," 1900 Prairie Ave., Chicago.

PLUMBER, EXECUTIVE ABILITY, twenty years' experience, desires position as manager, superintendent, estimator, inspector or maintenance man. Address Key 200, "Domestic Engineering," 1900 Prairie Ave., Chicago.

Lines Wanted

SPECIALTY SALESMAN CALLING ON plumbing trade desires manufacturers' lines of nipples, unions, range boilers, closet combinations, closet seats, etc., to sell direct to the plumbing trade in the midde west. Give full information regarding terms, commissions, etc., in first letter. A-1 reference can be given. Acquainted personally with all middle western trade. Address Key 192, "Domestic Engineering," 1900 Prairie Ave., Chicago.

Lines to Handle

WANTED—WE HAVE AN EXCELlent proposition for a state representative to handle an old well advertised line of pumps, water systems and water softeners. Give experience in first letter. Address Key 152, "Domestic Engineering," 1900 Prairie Ave., Chicago.

SALESMEN WANTED, WHO ARE calling on plumbers, to sell as a side line our nationally known brand of boiler liquid and drain pipe cleaner, on a commission basis. Write in detail covering experience, firm now representing and territory covered. Address Key 202, "Domestic Engineering," 1900 Prairie Ave., Chicago.

For Sale

PLUMBING AND HEATING BUSINESS in a diversified manufacturing city in northern Ohio. Excellent prospects for future business. Real estate, modern house, all improvements, story and a half shop, stock, tools, truck, all for $10,300.00, Lst., mortgage $2,500.00, cash required $7,800.00. Address Key 198, "Domestic Engineering," 1900 Prairie Ave., Chicago.

Miscellaneous

STOP "GUESSTIMATING"
Avoid Errors and Omissions. Our
Plumbers' Estimate Sheets
will SAVE Time and Money.
100 leaves in a book—4½x10
1 Book, $1.25 5 Books, $5.
via Ins. Parcel Post same day we get order.
LOUIS FINK & SONS CO., Printers
Time Sheets, Job Tickets, Letter Heads, etc.
School Bldg. Laurel Springs, N. J.
In Business Thirty Years. *Noted for Quick Service*

PLUMBERS' BIN LABELS

$1\frac{1}{2} \times \frac{3}{4}$
RED. ELLS

Send for samples and prices of card holders, bin labels and stop valve tags, and free booklets: "How to Lay Out the Plumbing Shop" and "How to Train the Apprentice Boys." Haddon Bin Label Co., Haddon Heights, N. J.

BOILER STOP LEAK LIQUID
$3.75 Per Gallon

You save half when you order Boiler Stop Leak Liquid, the permanent leak stop for all boilers.

Send no money. Pay the postman $3.75 when Stop Leak is delivered to you.

McKENZIE ARCH COMPANY, Inc.
37 W. Van Buren Street - Chicago, Ill.

WE WILL BUY
Your Surplus
PIPE COUPLINGS

all sizes, black or galvanized. We pay highest market prices and the full freight from shipping point.

WRITE FOR PRICES—TODAY

Allegheny Tube & Steel Co.
Tubular Div., Plant No. 3
1304 N. Main St. St. Louis, Mo.

BETTER TECHNICAL TRAINING MEANS A BETTER JOB

Warren Heckbert, of San Diego, writes us the following: "Your course has no equal. The little studying I have done has helped me to get a new and better job." St. Louis Technical Institute has successfully helped Warren Heckbert and hundreds of others in their climb to the top, and we can do the same for you if you accept our training. For 18 years, St. Louis Technical Institute has specially prepared men for promotion that was as certain as it was deserved. Our students enjoy the best of pay, steady employment, better technical knowledge. You, too, can enjoy the same success if you subscribe to St. Louis Technical Institute engineering courses. Check the subject that interests you and send for full free information without any obligation.

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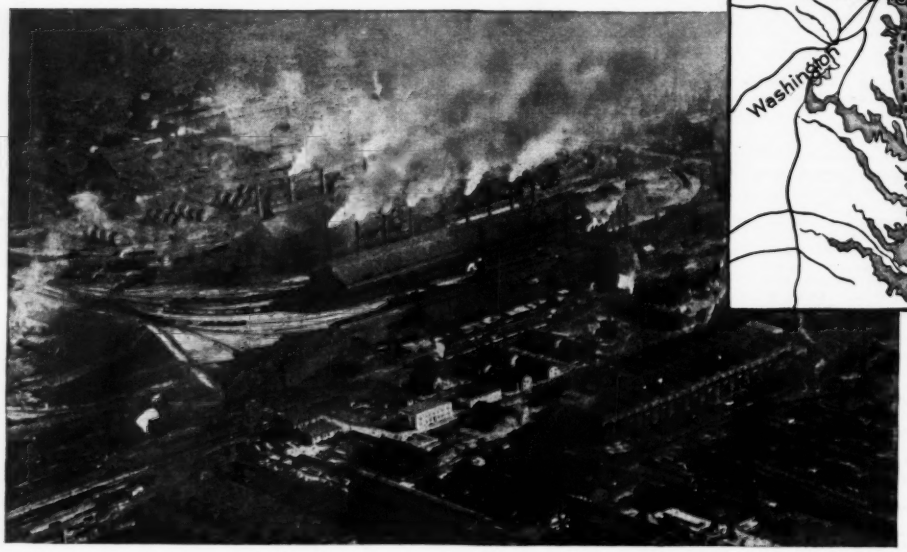
The Sanitary Sewerage of Buildings. By Thomas S. Ainge	1.50
Standard Practical Plumbing. By R. M. Starbuck	3.50
Practical Steam and Hot Water Heating and Ventilation. By Alfred G. King	4.00
Table of Estimated Radiation. By Harry B. Perrigo	1.00
Heating and Ventilation. By Prof. John R. Allen and J. H. Walker.	3.50

Books Sent Parcel Post Prepaid

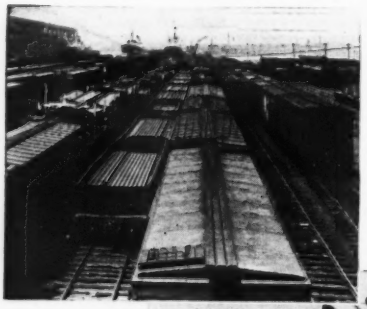
Domestic Engineering
1900 Prairie Avenue, Chicago



Above: Both rail and water transportation lines are available for shipments from Maryland Plant.

Left: Airplane view of portion of Maryland Plant.

Convenient shipment to all points
from Bethlehem's new pipe mills



Above: Section of Railroad yards at Maryland Plant.

Right: Loading Bethlehem Steel Pipe into vessel at Maryland Plant.

THE new pipe mills of Bethlehem Steel Company are located at Maryland Plant, Sparrows Point, Md., near Baltimore. As a shipping point, Maryland Plant enjoys decided advantages, for it is adjacent to a great transportation center from which rail and water lines radiate in every direction.

Inland shipments of Bethlehem Steel Pipe may be made by one of the three trunk-line railroads that enter Maryland Plant. And the location of Maryland Plant on tidewater permits equally prompt shipments by steamer to points on the Atlantic, Gulf and Pacific Coasts. The pipe can be loaded into the vessel at the plant.

The location of Maryland Plant and the unusual transportation facilities that are available are an important factor in Bethlehem's ability to offer exceptional service to jobbers and users of steel pipe. Shipments of Bethlehem Steel Pipe can be made from Maryland Plant to any destination by a direct, quick, economical route.

BETHLEHEM STEEL COMPANY

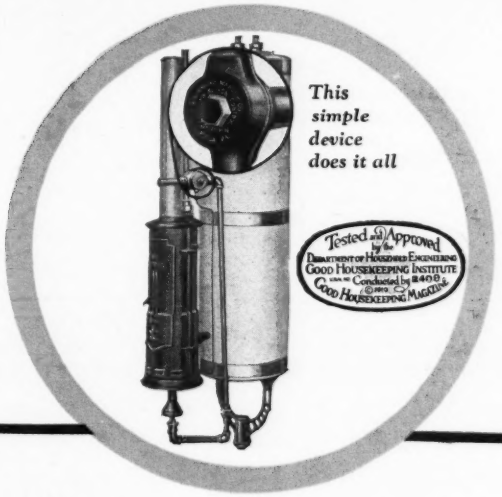
General Offices: **Bethlehem, Pa.**

District Offices: New York, Boston, Philadelphia, Baltimore, Washington, Atlanta, Pittsburgh, Buffalo, Cleveland, Detroit Cincinnati, Chicago, St. Louis, San Francisco, Los Angeles, Seattle, Portland and Honolulu.

Bethlehem Steel Export Corporation, New York Sole Exporter of our Commercial Products

BETHLEHEM STEEL PIPE

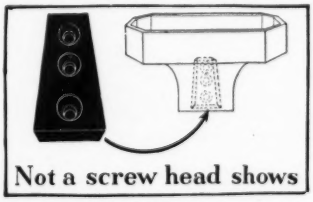
W-W KLIXON Thermostat


This simple device does it all
Tested and Approved by the Department of Housewife Engineering Good Housekeeping Institute Conducted by Good Housekeeping Magazine

MUSHROOM Parabal

Known as the "world's best tank ball". Made of one piece finest quality para rubber. Specially designed to fit right down into the valve like a cork in a bottle. Guaranteed for a full three years. Use 'em on every job to make a real profit.

Retail price . . . $1.25



W-W Ever-White Sani-Set

Sparkling, shining china fixtures that are easily installed over wedges, so that not a screw head shows. Complete set consists of Tooth Brush and Tumbler Holder, Toilet Paper Holder, Robe Hook, Soap Holder, and 24" Towel Bar — on which you make a worthwhile profit.

Retail price . . . $7.95
(for complete set)

Keep Your Sales Volume at a Steady Level~

Many progressive Master Plumbers have found that so-called "traditional sales slumps" can be overcome by some extra effort on a few leading items for which there's a big demand.

The Woodward-Wanger KLIXON Thermostat for gas water heaters is an ideal proposition for this purpose. It has a tremendous market yet undeveloped by personal contact. For every owner of the eight or nine million side arm heaters now in use in this country is a real live prospect.

The retail price of $12.50 assures you of a two-thirds profit on every Thermostat sale. And in addition to this one, you can make another nice profit on the $10 or $12 sale of the Woodward-Wanger 3 layer, air cell asbestos boiler covering.

Advertising and Merchandising Plans Now in Operation—

In addition to your personal sales effort, let us tell you how you can make the most of our national advertising, our direct-by-mail campaign and our attractive counter or window displays.

Simply mail the coupon for full particulars

WW HOUSEHOLD PRODUCTS

WOODWARD-WANGER CO., 1106 Spring Garden St., Phila., Pa.
I would like to have by return mail full particulars about the sales and profit-making possibilities of the W-W Klixon Thermostat.

Your Name.....
Firm Name.....
Address..... (Street Address)
(City) (State)

Woodward-Wanger Co.

Philadelphia

Oakland, California ***Chicago, Illinois***

Jack: "Thought you hadn't much use for soldered joints."

Old Timer: "Right you are!—and there's not a drop of solder used to strengthen joints in Grinnell Thermolier."

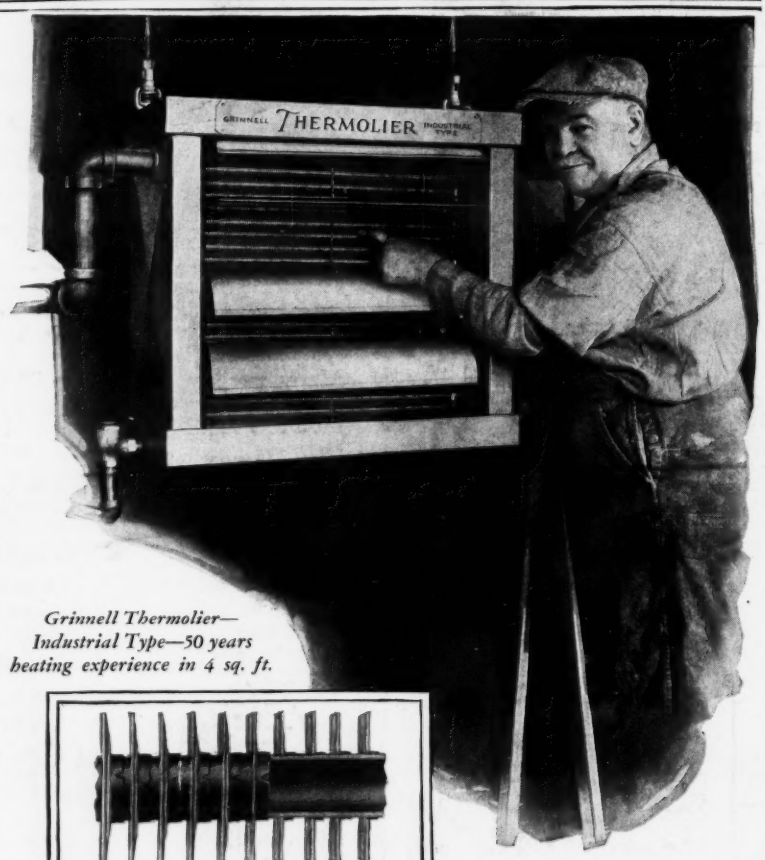
The Old Timer Knows

SEAMLESS copper tubes expanded into cast iron header plates with no solder used (or needed) to strengthen the joints, —that's one of the 14 points which make the Grinnell Thermolier a good "buy."

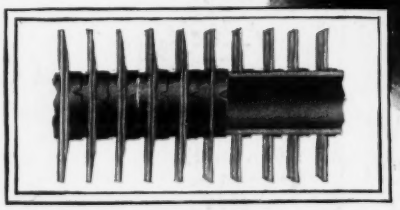
The final immersion of the tube and fin assembly in a solder bath is not a strength factor but is merely to establish a permanent metal bond making for faster heat flow between the tubes and their fins.

Strength and protection against leakage depend entirely upon the expanded (or rolled) joints into which no solder enters,—and perfect, time-tried joints they are.

Write for free booklet describing the other 13 points of superiority of Grinnell Thermolier.

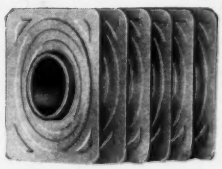


Grinnell Thermolier—Industrial Type—50 years heating experience in 4 sq. ft.



Cross section photograph showing how the deep tight fitting collars on the fins provide ample support and large metal contacts for rapid heat transfer from tubes to fins.

Stamped fins ⅛ in. square provide 24% more area than round fins occupying the same space. This accounts for the larger amount of heat obtained from the small frontal area of Thermolier.



GRINNELL COMPANY

Executive Offices: Providence, R. I.

Branches in all Principal Cities

14 Points of Superiority

GRINNELL COMPANY, INC.
305 W. Exchange St., Providence, R. I.

I want to read more facts about the Thermolier. Send along the booklet.

Name_____

Address_____

City_____